

Sega Saturn ■ PlayStation ■ 3DO ■ Ultra 64 ■ PC CD-ROM ■ Jaguar ■ 32X ■ Arcade ■ Online

NEXT GENERATION

Leading edge computer and video games

September 1995

PlayStation's driving force

Destruction Derby by newcomer Reflections, published by Sony, Paysan's, overtake *Need for Speed* to claim PlayStation's racing crown. A full behind-the-scenes look at the development of this essential, multiplayer PlayStation purchase begins on page 58

Got a PlayStation? Then get this.

Destruction Derby pushes Sony's

32-bit game machine to the limit

volume one


09

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Sega Saturn: Game developers hate it, so how's Sega helping? Plus, the making of *Virtua Fighter 2*



This is the hardware...

These are *real* screen shots...



September 9, 1995: As the world's most powerful game machine goes on nationwide sale for \$299, a brand new chapter begins in a story that started in 1972 with Nolan Bushnell's *Pong*. PlayStation's hardware epitomizes the advances made in interactive entertainment during the last 23 years — and represents videogaming's coming of age.

The official US launch of Sony's PlayStation fulfills the ambitions of a giant, multinational corporation long envious of Sega and Nintendo's dominance of the \$10-billion world-gaming market. The videogame business is bigger than the movie industry (Shigeru Miyamoto's *Super Mario Bros 3* made more money than Steven Spielberg's *Jurassic Park*).



And now Sony has a slice of the action.

This month gaming changes forever.

Videogaming is in the big leagues.

Will software creators continue to flourish and grow? Will creativity or commercial viability be the prime directives?

Games like *Jumping Flash!*, *Battle Arena Toshinden*, and now *Destruction Derby* (see page 58) would indicate that the future has never looked brighter. Let's hope it stays that way.

NEXT Generation will continue to report accurately and fairly from this brave new videogaming world — because



when you're caught in the crossfire of the biggest platform wars of all time, you need reliable information. Isn't it good to know that as videogaming changes forever, magazines already have?

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Produced in the United States of America.

NEXT Generation shares editorial with, and is affiliated to, a UK-based magazine that has lately been dandling around under the name of EDGE. So, welcome aboard Chris Charla. Please don't be too bizarre. "He ain't got no boot" (aka The Bombardier Song) - our tip for the tip. By the way, did we mention Melody Stephenson?



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So which 32-bit system is Electronics Arts betting on?

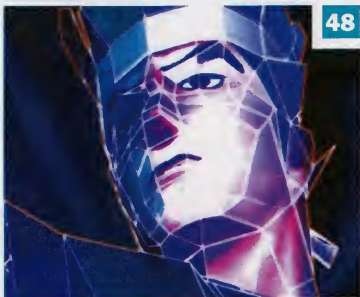
If EA hadn't backed Sega's fledgling Genesis at the dawn of 16-bit, there might not even be a Sega Saturn now. The question is which 32-bit system is the world's premiere developer backing this time? NEXT Generation talks to EA's VP Bing Gordon to find out



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EA's Bing Gordan picks his winners of the 32-bit race

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Alphas: 11 game previews

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Finals: 47 game reviews

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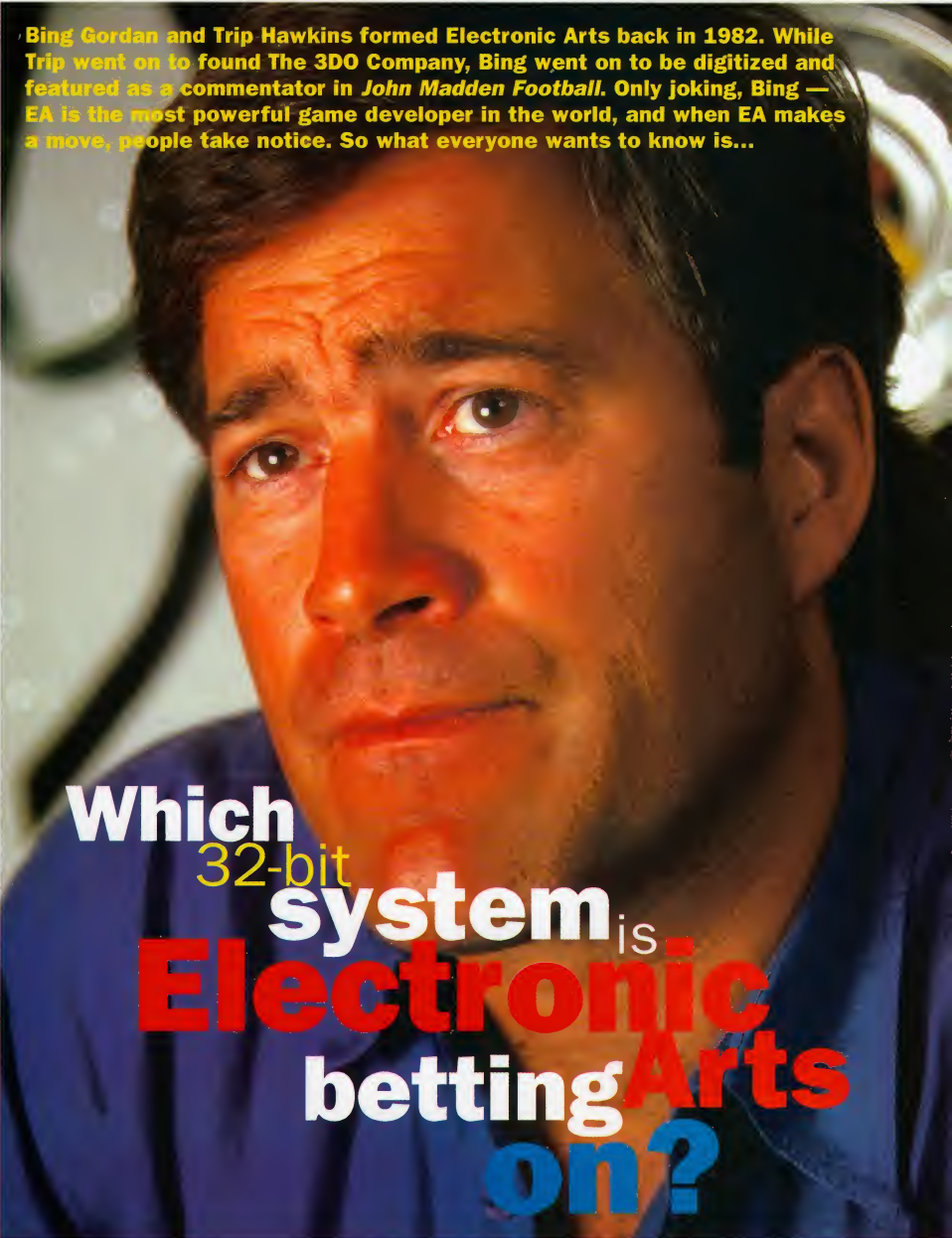
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Bing Gordan and Trip Hawkins formed Electronic Arts back in 1982. While Trip went on to found The 3DO Company, Bing went on to be digitized and featured as a commentator in *John Madden Football*. Only joking, Bing — EA is the most powerful game developer in the world, and when EA makes a move, people take notice. So what everyone wants to know is...

Which
32-bit
system is
Electronic
betting **Arts**
on?

Let's not be coy. If it wasn't for *John Madden Football*, *NHL Hockey*, *Road Rash*, *Desert Strike*, *PGA Tour Golf*, and the rest of EA's almost exclusively Genesis-based releases, the videogaming world of 1995 might be a very different place. The Genesis might never have scaled to the dazzling heights it occupies today (well, yesterday), Nintendo might have crushed Sega without a struggle and the Saturn might never have been released.

The point is that EA has to decide which game system it's going to support in the 32-bit age. Whereas gamers all gamble when they spend \$400 on a new games system that hopefully will still be around in years to come, when it comes to picking what systems to develop for, EA has to take a gamble worth millions of dollars.

So **NEXT Generation** met with Bing Gordon, EA's Vice President of EA Studio, to ask, "Who's it going to be?"

Backing the PlayStation?

NG: Looking at the 32-bit product lineup with the exception of *Psychic Detective*, all the games are derivatives and descendants of old 16-bit games. Is this a sign of EA growing lazy?

Bing: No, no — it's just a timing issue. The issue that it all looks like sequels of existing properties, well, we did the same thing with Sega Genesis. We shipped between seven and nine Sega Genesis games in the first year, and no other third party shipped more than one. But every one of those titles had preexisted on Amiga or C64 or the PC.

But there's a race to get quality product out, and for something like *Wing Commander*, when you spend millions on movie footage, it should be no surprise that the versions on every CD system are going to look the same. You get your killer apps, new killer apps, in the second year.

NG: Another cursory glance at EA's current release schedule would suggest that PlayStation is your favored machine. Is that a fair conclusion?

Bing: At E!, we showed 10 things on PlayStation, only a handful of things on Saturn, a dozen things on PC, 7 or 8 things on 3DO, and that's a fair assessment of how our product line is going to look — with perhaps more PC products (they can be finished four to six weeks later to make this same ship date).

There will be more 16-bit titles also, but we didn't want to confuse the issue.

NG: So PlayStation is featuring more prominently than Saturn in EA's plans?

Bing: Yes, and there are several reasons for it. The first is that EA people have been Sony consumers for a long time. If anybody can take a consumer brand and expand the interactive

entertainment market, our emotional belief is that Sony can do it. Sega has done a great job of adding hip excitement to the business and taking it beyond early adolescents and adding a whole new element of possibility to the mass market. But a lot of us believe that Sony is the brand name that can work wonders.

NG: You're implying that the industry needs something to help it grow?

Bing: Since our founding in 1982, we have always believed that there has been a manifest destiny for interactive entertainment to be every bit as big as any of the entertainment media businesses — and we are constantly looking for ways to help it get there. Our goal is to be one of the leading factors in making it happen.

We believe that a brand and a company like Sony — if committed, and if with successful execution — is a message to people who should be consumers but haven't got the bug yet, to start taking notice of what's happening in the industry.

The other reason we have for making more PlayStation titles is that we have had more rapid progress developing for the PlayStation. It turns out that with Sony's console, it's been easier for us to take 3DO and PC games and port them to the PlayStation than to port them to the Saturn — especially with the 3D stuff.

NG: Are you confident that Sony knows what it is doing?

Bing: Yeah. It knows what it's doing. Usually, software companies and hardware companies don't really get along — it's like creative people and finance people. There are exceptions, but generally, when

push comes to shove, there always seems to be some communications problems.

EA is pretty sensitive to seeing hypocrisies, or at least inconsistencies, in hardware claims. Hardware companies always extend reality on installed base, they almost always extend reality on entry price, they always extend reality on



It's time to make a choice. EA swears to its principle of getting into new systems "early and deep," but which system will it chose in the 32-bit era?

talking

"It's hard to argue that in Japan Nintendo won't be one of the leaders no matter what they do. It's hard to argue, that Sega won't be one of the leaders in the US and in Europe. It's hard to imagine Microsoft and Intel won't be a leader in the US"

development systems. But Sony — whether this is good or not — has been fairly consistent from day one, and that's wonderful for a software company like EA.

NG: So do you believe PlayStation will dominate?

Bing: We think that there will probably be three major interactive entertainment architectures in each of the three major territories [the US, Japan, and Europe]. We wish that they would be the same three architectures, but, unfortunately, this probably won't be the case.

It's hard to argue, for instance, that in Japan, Nintendo won't be one of the leaders no matter what it does. It's hard to argue that Sega won't be one of the leaders in the US — and in Europe — no matter what it does. It's hard to imagine that Microsoft and Intel won't be leaders in the US, no matter what they do. And Matsushita [3DO] has the same kind of market power in Japan that Microsoft has in the States.

So while we're backing Sony, it's still hard for us to imagine not having a strategic relationship with a key Sega platform — we've built a base of 10 million loyal Sega-owning customers and we feel pretty loyal to them.

NG: So you don't see one machine dominating?

Bing: The only way I could see that happening is if Sony, Sega, Nintendo, or Panasonic come out with a knock-out punch.

NG: What would you view as a knockout punch then, 3DO's M2?

Bing: A knock-out punch would be Sony at \$199 and Sega staying at \$399. But Sega — Mr. Nakayama, knows his market. He's not going to accept giving up half his loyal Sega customers just to save \$100 bucks per machine. Because his 32-bit CD business is only going to last five years max, maybe four years. If he comes out of that with a 15% share of the market instead of the 50% he had going into it, it's going to be incredibly

expensive to get back.

So I don't think we will see a knock-out punch. At least a couple of companies are going to protect their long-term evaluation and pay whatever it takes to survive.

NG: How does the PC feature in EA's plan over the next few years?

Bing: I think PC will be the number one entertainment interactive for the next three years. The PC has this unfair advantage because with it people think that \$2,000 is cheaper than \$300. After you get above \$100, a purchase has to go through an analytical process — for most households. Once you get to that analytical process, the PC seems to be a safer bet. It's like this big insurance policy — because it's a personal computer, it seems to double the magic. And the other hidden asset of the Intel/Microsoft alliance is the Internet. The Internet is coming on so fast

that where it's going to go is unpredictable.

The 3DO Experience

NG: Hypothetically, do you think that Sega's Genesis could have succeeded without EA's support four years ago?

Bing: I don't think that Sega would have gotten a 50% market share without us, but it would have gotten at least 10%.

But without EA, particularly EA Sport's lineup, I think Sega would have been hard pressed to be more than simply a technology leader.

NG: Conjecture aside, what EA's backing of Genesis proved was that the supply of quality games from a company such as EA is a tremendous boost — if not essential — to a new system's success. How do you decide which system to back? It sure is one hell of a gamble...

Bing: Your notion that I'm a gambling man, or that EA's a gambling company, comes from our experience that we are successful when we take an early and deep position on an architecture. And we are really successful when that architecture turns out to be a market leader. Wishy-washy strategies don't lead to great success.

NG: The strategy you outlined: the business of getting in fast and deep also runs the risk of you getting your fingers burned every now and then.

Bing: As for getting burned, we have never lost money on that strategy.

NG: So 3DO has been profitable for EA?

Bing: The 3DO operating business has been lightly profitable for us. On the whole, because of our equity arrangement with 3DO, the strategy has been wildly profitable.

It's also enabling us to get started in Japan. It gives our distribution people in Japan a leadership product line to sell on a format that's meaningful,



Bing Gordon handled the marketing of all EA's games throughout Trip Hawkins' reign at EA. He then moved to head up EA Studio. "Now he's the main man," say staff

not unlike the way that we launched in Europe with C64 tapes and disks. It was an uphill slog, but we had a product line that people wanted on a platform that was viable.

NG: And, of course, it enabled you to start work on designing 32-bit games early.

Bing: Our strategy on 3DO has been to build products that would be wildly successful if 3DO got the market share it hoped for, and successful if other CD-based 32-bit architectures turned out to have similarities to 3DO [in which the games can be ported to that system]. So the success of our investment in 3DO, other than the equity relationship, mostly has not been earned out yet.

Also, a major goal for us with 3DO was to get the whole industry

onto a TV-based, advanced electronic CD system earlier than we thought Sega and Nintendo would get there on their own. I think 3DO probably allowed companies like EA to deliver advanced, CD, TV-based products to customers two years earlier than would have happened otherwise.

NG: Do you miss Trip Hawkins?

Bing: I still see Trip regularly, and he's one of my best friends.

NG: Does EA miss Trip Hawkins?

Bing: Let's see. Trip is one of the few people in the industry who combines business savvy with creative product savvy. There just aren't many people who can cover the whole thing. Any company would be happy to have him. Trip is a great creative leader and strategic visionary.

NG: Were you ever personally a believer in the whole 3DO vision?

Bing: Um. I was... and I am... I believe that 3DO was a great effort at pushing the industry along. I believe that 3DO — two years from now — is going to be viewed as one of the things that has caused the industry to grow through the '90s.

What always seemed risky was trying to build an alliance where the hardware company, the architecture company, and the studios are in three different places. The prospect of trying to raise \$75 million or \$100 million to make that happen seemed like an impossibly uphill task. On the other hand, I've seen Trip backed into a lot of corners in the past 18 years and he's surprised me several times in the past. So I think the business achievement of getting 3DO to where it is today... well, it still kind of blows my mind.

I told him at the start, I thought he had only a 10% chance of getting to the point where even the technology worked. And that was even knowing Trip. The thing about Trip is that if he believes that it's only a 10% chance, then what he does is

double his efforts.

NG: What was Trip's motivation?

Bing: Trip was hoping that he could hit a market window early enough that 3DO could become the standard and all the other hardware companies would adopt it. Trip has been saying since 1980 that our industry needs one architectural standard and, you know, that always seemed like a risky vision. Personal relationships being what they are, it's hard to imagine this industry working that way.

And, of course, a \$700 price point was never part of the vision.



EA and Sports

NG: Does EA's emphasis on sports titles affect your decision of which new

system to support, PlayStation or Saturn?

Bing: For us specifically, with our sports games, we've got a choice of getting to the PlayStation early where we don't believe there will be much competition or trying to get to the Saturn five minutes before Sega Sports does (Sega is our leading competitor in the sports sector).

Ideally, of course, we'd like to do both. I'd like to not give Sega a chance to catch up with us in football, hockey, soccer, and golf, and I'd like to catch up with them with baseball.

NG: Has the fact that EA and Sega are the two biggest sports game manufacturers affected your relationship with them at all?

Bing: Absolutely. It's something we've had to work on from the beginning. At least with Sega, it seems that the competition with them is fair and above board. Sega doesn't take advantage of its extra profitability — being a licensor — to practice dumping [forcing EA out of the market with artificially low-priced Sega cartridges]. Sega basically out-spends us at marketing at a ratio of three to one, and that feels unfair because we know what it is doing — Sega is justifying the expenditure because it also sells more hardware — and we hate it, but actually it is fair. Just like it's fair for us to put games like *Madden* on competitive machines. That's just business.

Sure, there's an opportunity for Sega to take advantage of us because of the advance knowledge of our games. There's a chance to see what our features are and then change their own games — and we were paranoid about that early on. But my sense is Sega hasn't abused that opportunity.

NG: Will the sports genre remain a large part of EA's core business?

Bing: Yes, for several reasons. First, we have amassed a group of people who are avid sports freaks. Someone like Steve Cartwright who was a



“Some day I'm going to die, and I'd really like to have lived some alternative lives, created for me by world-class creative people, before I go. That way I won't be so pissed off about dying”



Electronic Arts has long been in battle with Acclaim for the position of the world's most successful game producer. Only Sega and Nintendo are bigger

"The way the interactive entertainment industry grows is to go out and find people who have a non-interactive media application and then find a way to make it interactive"

half-of-fame game designer way back in the Activision days, who is also an avid golfer, has ported PGA to almost every platform and gets to make a competitive upgrade every year. He thinks it's cool.

A word to EA's rivals

NG: Is EA stock a good one to buy right now?

Bing: I can't comment on that... but I haven't sold any in a while. I think EA is going to have more market share in five years than we have right now. I think the advanced CD

generation will be very kind to us. I think having a multiplicity of brands, and a cross-pollinating federation of studios is the best model for a business like ours.

For Peter Molyneux [Bullfrog], Don Mattrick [EA Canada], Richard Hilleman [head of EA's Entertainment Division], Richard Gariott [Origin] and Scott Orr [producer for EA], to be able to get on the phone and get on video conference and show off each others' products and talk about an issue and share technology — there's an advantage that no one else has, and no one else is likely to get. It's not the kind of average thing that can be easily pulled off in a world of big and fragile egos.

NG: Aren't you worried about the legions of competitor game developers with their own sports games?

Bing: Right, an awful lot of our competitors who saw what we did with 16-bit are now saying that sports is now the key battlefield for advanced CD, and I tell them directly, I say that I think these guys are missing the boat.

There are other categories that will be key battlefields. I would advise them to explore such growth areas as interactive movies and 3D games.

NG: On that subject, what is your definition of an interactive movie?

Bing: I think 'interactive movies' is the name of a category. It's whatever product that is going to be required to get people who are film buffs to start buying interactive software. It's the 18- to 34-year-olds who are seeing six to eight movies a year and not playing videogames. An interactive movie will be whatever products these consumers see that starts taking advantage of the

quality of drama and the personification of actors, with some of the presentation of Hollywood.

People who want to play a videogame, flying around and shooting aliens, they know that this game already exists. That's the action component we're all familiar with. The charm of a game like *Psychic Detective* [EA's forthcoming interactive movie], however, is in its content — which is different from what has been available — not so much in the mechanics of the interaction.

NG: How do you see this type of game evolving?

Bing: I think it will be five years before we have working models of how often people have to push a button to make an enjoyable interactive movie. In Hollywood, they now have worked out how long you can prolong adrenaline rushes in a movie before you have a break, or how much emotional content you need to make a movie satisfying.

We'll eventually be able to work out a similar frequency of button clicks in order to make the interactive movie a rewarding experience.

NG: So why would you encourage your competitors to explore this type of game in 1995?

Bing: The way the interactive entertainment industry grows is to find people who have a noninteractive media application and then find a way to make it interactive. The reason sports were so big with 16-bit is because the technology was there to provide a satisfying sports simulation.

The technology to provide satisfying mass-market storytelling and immersive 3D games hasn't been available before the last year. So now we have a chance to build a market as big as the sports market. So these companies looking to get into sports are missing an opportunity to become number one or number two in a new category and are, instead, merely going to end up number five in an existing category. If I was on their boards I would tell them not to do it. But, of course, they think I'm lying to them.

NG: They have a fair point. Why should you be giving them hints?

Bing: Because in years to come I want to be in a position where I can say that I predicted this. Often my credibility is more important to me than economic results. I want this business to grow. The manifest destiny of this industry is more important to me than the individual success of EA. Really, I want to live in a world where entertainment is interactive; I want to live in a world of choices.

Because some day I'm going to die — and I'd really like to have lived some alternative lives, created for me by world-class creative



there to provide a satisfying sports simulation. The technology to provide satisfying mass-market storytelling and immersive 3D games hasn't been available before the last year. So now we have a chance to build a market as big as the sports market. So these companies looking to get into sports are missing an opportunity to become number one or number two in a new category and are, instead, merely going to end up number five in an existing category. If I was on their boards I would tell them not to do it. But, of course, they think I'm lying to them.

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Up-to-date analyses, snippets, and worldwide news

The US Sony PlayStation has landed

On September 9, the world's most powerful videogame system launches in the US for \$299

On September 9, Sony Computer Entertainment (SCE) of America will release the US version of the PlayStation, heating up the next generation system wars in America to a boiling point. The unit will carry a suggested retail price of \$299 (\$100 less than Sega Saturn's \$399 price tag) but will not include any pack-in game titles.

More than any other aspect of the release, Sony's offering of at least 17 game titles at launch, with more than 75 more to follow by the end of fourth quarter, offers a startling contrast from the six initial titles and trickle of subsequent Saturn games released so far. This is a function of both Sony not pulling the rug from under its game developers' feet with a last-minute change of release date, and the fact so far PlayStation is the easier to develop for (see page 48).

The release of Sony's PlayStation brings to an end Sega Saturn's head start in its 32-bit race against Sony. The question, now, is just how much Sega's four-month jump gained for Saturn? Tim Dunley, Sega's self-proclaimed marketing zealot, believes that the company's head start makes all the difference in the world. "It's very important to show that we are not only ahead in our marketing, but that we are also first in consumer's minds when they think of next generation systems," he argues. Quite how 3DO (having been on sale for two years) fits into this thinking is for Dunley and Trip Hawkins to debate.

Sega claims to have shipped 100,000 Saturns to US stores so far, a number which, while certainly nothing to be ignored, is far from indicating an early domination of the next generation market. 3DO can claim at least double that number of installed



Photo: William Padden

US systems, and Sony officials aren't admitting to losing any sleep over the issue, as Chip Herman, SCE's VP Marketing explains: "Historically, the summer months are slow ones for the videogame industry. Couple that with the limited retail distribution with which Sega has launched Saturn, and we don't expect the early introduction of Saturn to affect our success at all."

So the big push toward the holiday season, the busiest business period for sales, begins. Marketing will be the battleground on which the two companies face off, each looking to bombard what they believe to be the target consumer.

Sega plans to continue its current "right-side-of-the-brain" strategy that's aimed at the early adapters in the form of 18 to 34-year-old males; hoping "that 'sensory' advertising will stimulate huge demand

The US PlayStation is a stripped down "lite" version of the Japanese original, losing its S-video output in transit

The question now at PlayStation's release is, "Just how much has Sega's four-month jump-start has given Saturn?"



An extra joypad is a must buy, as is a memory card or two (Japanese kids have been trading saved games and high scores on them for months)

for the product by creating a yearning for the experience of Sega Saturn," (see NG 8). With \$50 million to spend on Saturn marketing, Sega is counting on the same irreverent humor that worked so well in building its 16-bit Genesis-brand awareness to lead consumers toward Sega Saturn.

Sony refuses to give exact figures, but inside sources hint at a 1995 marketing budget of \$40 million. While Sony claims to be targeting a more "cerebral audience," early ads would indicate that Sony is taking a fairly pragmatic approach, relying on screen shots and big-name

games to draw consumers in. Look for PlayStation sponsoring the MTV Music Awards, as well as marketing support from in-store demonstrations and a dedicated PlayStation WWW-site.

In Japan, Sony claims to have sold one million PlayStation since December 3, while Sega claims to have sold 1.3 million Saturns since its introduction on November 23. Quite what significance these figures have on the US market is debatable.

What's certain, though, is that the 32-bit race is closer than anyone had expected. The only guaranteed winner is the gameplayer. And that can't be a bad thing.



What is it?

The 1984 commercial of this new product proved to be one of the best remembered ads of all times aired during Super Bowl XVIII. The slogan for this once-used product was "For the Rest of Us."

PlayStation: The Release Schedule

Q1 = Jan-Mar; Q2 = Apr-Jun; Q3 = Jul-Sep; Q4 = Oct-Dec

A-Train 4 Masls	At Launch	NFL Football Konami	Q1 '95
Aeon Flux Viacom NewMedia	Q4 '95	NFL Game Day Sony Imagesoft	Q4 '95
Aftermath Interplay	Q4 '95	NFL Quarterback Club '96 Acclaim	Q1 '96
Aftermath American Technos	Q4 '95	NHL Face Off '95 Sony Imagesoft	Q4 '95
Agile Warrior Virgin	Q4 '95	Newsform Pygmalion	At Launch
Air Combat Namco	At Launch	Dif-World Interceptor Crystal Dynamics	Q4 '95
Alien Virus Vic Tokai	Q4 '95	Passer General SSI	Q4 '95
Aliens vs. Predator Fox Interactive	Q1 '97	Panasonic Pygmalion	Q1 '96
Assault Rips Pygmalion	Q4 '95	Paradise Konami	At Launch
Balloon LucasArts	Q1 '96	PGA Tour '96 EA	At Launch
Baseball '95 Crystal Dynamics	Q4 '95	Planet of the Apes Fox Interactive	Q1 '97
Batman Forever Acclaim	Q4 '95	Power Serve 3D Tennis Ocean	At Launch
Battle Arena Toshinden SCEA	At Launch	PowerSport Soccer Pygmalion	Q4 '95
BioHazard Capcom	Q4 '95	Primal Rage Time Warner	Q4 '95
Blazing Dragons Crystal Dynamics	Q4 '95	Project Overkill Konami	Q1 '96
Brain Dead 13 ReadySoft	Q4 '95	Psychic Detective EA	Q4 '95
Buried in Time: Journeyman Project 2 Sanctuary Woods	Q1 '96	Raiden SCEA	At Launch
Casper Interplay	Q4 '95	Raw Pursuit TBA	At Launch
Castleblaze: The Bloodletting Konami	Q1 '96	Rayman Ubisoft	Q4 '95
Converse Hard Core Virgin	Q4 '95	Razor Wing SCEA	At Launch
Cosmic Race Neorex	Q4 '95	Ridge Racer SCEA	Q4 '95
Crime Crackers SCEA	Q4 '95	Ripper TBA	Q4 '95
Cyberia InterPlay Productions	Q4 '95	Rock 'n' Roll Racing Interplay	Q4 '95
Cyberseed Namco	Q4 '95	Romance of the Three Kingdoms IV: Wall of Fire Koei	Q4 '95
D&D Tower of Doom Capcom	Q4 '95	S.T.D.R.M. American Softworks	Q1 '96
Dark Net American Softworks	Q4 '95	Screening Wheelz JVC	TBA
Darkstalkers Capcom	Q4 '95	Sentinel Pygmalion	Q4 '95
Deadly Sins JVC	Q4 '95	Shanghai: Triple Threat Activision	Q4 '95
Defcon 5 Data East	Q4 '95	Shrekback U.S. Gold	Q4 '95
Descent InterPlay Productions	Q4 '95	Shredfest EA	Q4 '95
Destruction Derby Pygmalion	Q4 '95	Silverball Vic Tokai, Inc.	Q4 '95
Die Hard Trilogy Fox Interactive	Q1 '96	Slayer SSI	Q4 '95
Dime & Wit FT Magic	Q4 '95	Solar Eclipse Crystal Dynamics	Q4 '95
Disc World Pygmalion	At Launch	Spill Realities JVC	Q4 '95
Don Pachi Alnus Software	TBA	Spot Goes To Hollywood Virgin	Q4 '95
Double Header Baseball: Signature Series Jaleco	Q4 '95	Starbuck Alpha Namco	Q4 '95
ESPN Extreme Games Sony Imagesoft	At Launch	Street Fighter Legends Capcom	Q4 '95
Fatal Racing Gremlin	Q4 '95	Street Fighter: The Animated Movie Capcom	Q1 '96
Fox Hunt Capcom	Q4 '95	Street Fighter: The Movie Capcom	Q4 '95
Frank Thomas 'Big Hurt' Baseball Acclaim	Q4 '95	Synthetic Wars EA	Q4 '95
Freelancer 2120 American Softworks	Q1 '96	Team 47 Goman 47 Tek	Q4 '95
G-Police Pygmalion	Q4 '95	Tekken Namco	Q4 '95
Get Crystal Dynamics	Q4 '95	The 11th Hour Virgin	Q4 '95
Guinness Neorex SCEA	TBA	The Big Boss World Championship Hot-B USA	Q4 '95
Harbinger Mindscape	Q1 '96	The Lost Vikings II Interplay	Q4 '95
Hardball 5 Accolade	Q4 '95	The Raven Project Mindscape	Q1 '96
Hardball 5 Sport Accolade	Q4 '95	The Tick Fox Interactive	Q1 '96
Hive Trinarx	At Launch	Theme Park EA	At Launch
Incredible Teams Capcom	Q4 '95	Thunder Hawk U.S. Gold	Q4 '95
Independence Day Fox Interactive	Q1 '96	Tap Gun: 'Fire at Will' Spectrum HolyByte	Q1 '96
International Superstar Soccer 2 Konami	Q4 '95	Total Eclipse Crystal Dynamics	At Launch
Jumpy Meenome Sony Imagesoft	Q4 '95	Twisted Metal Sony Imagesoft	Q4 '95
Johnny Flash SCEA	Q4 '95	V-Max Mindscape	Q1 '96
Kickin' the DNA Imperative SCEA	At Launch	Vidocle IFG MAG	Q4 '95
King's Field SCEA	Q4 '95	Virtuoso American Technos	Q4 '95
Krazy Ivan Pygmalion	Q4 '95	Virus Sony Imagesoft	Q4 '95
Legacy of Kain Crystal Dynamics	Q4 '95	Warhammer Mindscape	Q4 '95
Lemmings 3D Pygmalion	Q4 '95	Warhawk Sony Imagesoft	Q4 '95
Liquid Gremlin	Q4 '95	Waterworld Interplay	Q4 '95
Mag Zone Trinarx	Q4 '95	Wing Commander III: Heart of the Tiger EA	Q4 '95
M.B.P.A. Baseball Konami	Q4 '95	Wipeout Psygnosis	Q4 '95
Mortal Kombat II Acclaim	Q4 '95	WWF Wrestlemania Acclaim	At Launch
Mortal Kombat III SCEA	Q4 '95	X-Men: Children of the Atom Capcom	Q4 '95
Nitri Pygmalion	Q4 '95	2000 Viacom NewMedia	Q4 '95
NBA Jam Tournament Edition Acclaim	At Launch	3D Baseball '95 Crystal Dynamics	Q4 '95
NBA: Give 'n' Go Konami	Q1 '96	4x4 Bears 'n' Guts American Softworks	Q1 '96
NBA: In the Zone Konami	Q1 '96		

17 Games At Launch

Sega's surprise release of Saturn on May 11 was executed at the cost of having only six games available at launch, while PlayStation boasts at least 17 titles immediately available, and (as an inevitable symptom of Sony's reliance on third party development) they are of variable shapes, sizes, and quality.

SCE has made an effort to mix up the game styles a little with 3 PC conversions, 5 arcade conversions, 3 sports games, 2 original titles, and 4 upgrades of exiting games. If you're wondering where the other "big names" are (*Mortal Kombat 3*, *Tekken*, etc.), it's because Sony hopes to trickle out the blockbusters evenly over the next few months. Sony's definition of "blockbuster" may not be the same as the discerning gamer's, however, so check the release schedule for your personal favorites.

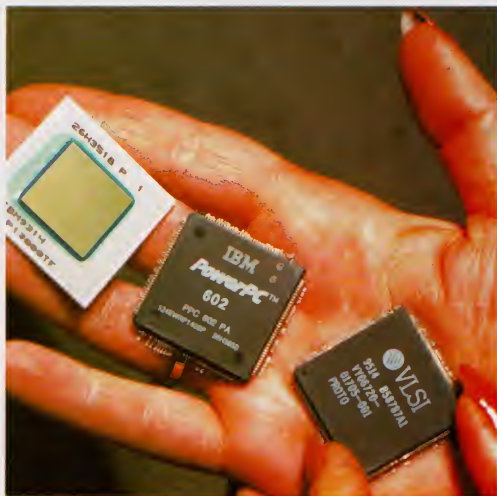
breaking

3DO stays in the 32-bit race

A \$100 price cut and rumors of a looming deal with Sega keeps 3DO in the spotlight

It is...

The 512K Macintosh. It was the first computer to sport a mouse, windows, icons, font choices, the 3.5-inch floppy drive, an advance micro-processor, digital sound, and MacIn Talk.



"Our sales have gone up since Saturn came out. Saturn gets them into the store, and we're \$100 cheaper"

Carrie Holder 3DO



Bundled packages with FIFA International Soccer (top), Gex (middle), and Shock Wave (bottom) are all new incentives to buy a \$299 3DO

Both of 3DO's US hardware manufacturers recently engineered a price drop of their systems to \$299. GoldStar's 3DO Interactive Multiplayer now comes bundled with EA's *FIFA International Soccer* and *ShockWave*, while the Panasonic FZ-10 comes with Crystal Dynamic's *Gex* included. While this currently makes both machines \$100 dollars less expensive than the Saturn, according to sources inside 3DO, the price could drop a further \$50 to just \$249 come PlayStation's \$299 launch on September 9.

The price drop would seem to be having the right effect: 3DO is outselling Saturn by a narrow margin at Electronics Boutique, Babbages, and Software Etc., during Sega's crucial four-month lead over PlayStation. "Our sales have gone up since Saturn came out," says Carrie Holder of 3DO. "Sega's Saturn gets

them into the store, and we're \$100 cheaper," she gleefully concludes.

Still, if internal sources at 3DO can be believed, all this competition may be for naught. "Most 3DO employees look at Sega as someone who is close to marrying into the family," says Rick Reynolds of 3DO, referring to persistent rumors that 3DO is close to clinching a licensing deal with Sega regarding its M2 add-on (**NG 6**). Negotiations are reportedly being carried out at the highest levels in Japan, and while sources at Sega of America are quick to crush all talk of such sleeping with the enemy, countless contacts at 3DO have (while remaining steadfastly off the record) refused to deny them.

It's hard to see any obvious, mutually beneficial reasons for Sega and 3DO to jump into bed—but that hasn't stopped the rumor-mills from churning. Possible motivations abound. First, Sega could be seeking to license

3DO's 64-bit M2 technology exists in the labs, but controversial rumors lead to the question, "What form will it reach gamers?"



3DO

Data stream

Sony's research and development cost for the PlayStation: **\$500 million**
 Change in Silicon Graphics stock in the past month: **+\$4/share**
 Change in applied materials stock in the past month: **+\$26/share**
 Acclaim's net sales at the end of the last fiscal year: **\$481 million**
Magic Carpet 2 engine: **Runs 75% faster than the original**
 Single-day release marketing campaign expense for *Mortal Kombat*: **\$10 million**
 Suggested Price of Sega Saturn by December: **\$350.00**
 Atari's new "six" button joypad due out: **December 1995, with 22 buttons total**
 Jaguar 2000 VR display: **104,000 pixels (428x244)**
 Lockheed Martin Corporation's claimed Real3D accelerator graphic abilities: **750,000 depth-buffered, textured, shaded, and MIP-mapped polygons/second**
 Graphic ability of Sega Saturn: **900,000 polygons/sec, with texture mapping, Gouraud shading, scaling, rotations, and scrolling engine**
 PlayStation link-up in Japan cost: **\$2000**
 3DO's M2 chip bus bandwidth: **528 MB/second**
 The cost of CD-ROM manufacturing: **Less than \$2/disc**
 The computing power of the Ultra 64: **64-bit MIPS RISC microprocessor at 105.8 MHz clock speed**



Both Panasonic's FZ-10 3DO Player (above) and Goldstar's Interactive MultiPlayer can be purchased for just \$299

M2 hardware as a power-booster for its Saturn. (Unlikely; too complex a hardware issue. And besides, why turn to 3DO?)

Second, The 3DO Company is in financial trouble; 3DO's

1995's net loss totaled \$46.3 million, and it has been widely reported that the company needs an injection of \$20 million "from somewhere" to survive until 1996. Hence, it may be forced to make a bargain-basement deal of M2's



technology, and to make an offer Sega just can't refuse. (Possible.)

Third, Sega and 3DO are joining forces to fight the 32-bit battle against Nintendo and Sony. (Very unlikely.)

Fourth, Sega is seeking to single-handedly remove a major competitor from the marketplace — by buying it. (In which case it's probably fair to say that both Nintendo and Sony owe Tom Kalinske a beer.)

Fifth, Sega is seeking to license M2 for its own arcade hardware. (Unlikely; Sega has its own Saturn-compatible ST-V arcade board and the high-end, Martin Marietta custom hardware used by AM2 and AM3.)

Last, the whole story is a blatant fabrication on the part of 3DO in attempt to boost its stock price and steal some of Sega's and Sony's launch hype. (One for the cynics.)

In any event, software development for M2 is continuing at a healthy if not breakneck pace, with several big-name developers such as Interplay and Take 2 Interactive working on M2 exclusive titles (more next month). How 3DO sales will grow as a result of the price cut (in **NG 7** it was argued that 3DO really needs to reach \$199 or \$249 — and fast) only time will tell.



i wish...

technology was expanding rather than shrinking.
 I wish Sega and Nintendo would focus on creating drinks so I'd read about the "Coca Wars" and not "Game Wars."
 • I wish my handcap was lower.
 • I wish I could just one time hit a backhand topspin lob for a winner.
 • I really wish Jim Whinsie had even deeper pockets but much longer arms.
 • I wish I didn't have to travel as much, or if I did, we somehow had a transporter like the device on "Star Trek."

Steve Race is the president of Sony Computer Entertainment of America



Steve Race

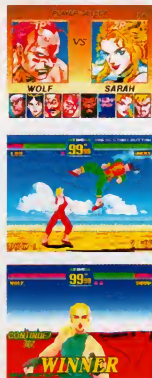
...sing, play a musical instrument, and run the 100 meter in less than 10 seconds.
 • I wish we could eradicate hunger, disease, and have world peace. (You have to put that in or everyone who reads this will think you're a self-centered dolt!)
 • I wish I could enumerate: the seven wonders of the ancient world, the names of the four Musketeers, the entire periodic table and all the plays of William Shakespeare.
 • I wish the life of game console

Sony vs Sega: the war continues

As PlayStation launches in the US, Sega and Sony continue the battle for Japan and Europe

Virtua Fighter Remix

Currently wowing gamers in Japan, and scheduled for US release soon, is *Virtua Fighter Remix*. Essentially the same game as the original *VF*, *Remix* features reworked texture maps and animation routines, effectively removing all the glitches from the original AM2 conversion. The overall effect of the new version is outstanding — and is fine testament to the theory that Saturn has yet to show only a fraction of its full potential.



Virtua Fighter Remix — same game but vastly improved visuals

As all US eyes remain fixed on the September 9 launch of PlayStation, the battle between Sega and Sony continues apace around the globe. The war that started in Japan prior to the holiday season 1994 has given no indication of easing up, and the battle for the videogaming hearts and minds of European gamers has only just begun, with Sega once again stealing a head start over Sony in the race to get its machine out first.

In Japan, Sony introduced a new PlayStation on July 21 — the SCPH 3000 — priced at ¥29,800 (\$320). Designed as a “popular” model, it lacks the S-Video output of the original, therefore reducing production costs, but otherwise it’s identical to the original. This move not only results in cheaper manufacturing costs for Sony, but cunningly also effectively dodges the “dumping” issue that clouded news of the machine’s US launch at \$299. Sam Tramiel in *NG 7* brought attention to the fact that selling the same hardware at two different prices in two different countries may infringe ITC trading rules. But by selling the new PlayStation at the equivalent of \$320, there’s no longer a significant price difference — and no dumping problem.

But before the “popular” PlayStation hit the streets, Sega’s cheaper Saturn was released. As of June 16, the Saturn is on sale for just ¥34,800 — ¥10,000 less than the original launch price. Although still \$75 more expensive than the PlayStation, the new Saturn pack does come bundled with a (nearly) new game: the curiously low-key *Virtua Fighter Remix*.

In Europe, potentially more significant than any of the price tinkering by Sony or Sega was the announcement of a strategic alliance between Sony Computer Entertainment and Namco. As a result of the deal, estimated to be worth \$100 million, Namco has given SCE exclusive distribution rights to all its PlayStation software in Europe, and the arcade giant will continue to furnish Sony with PlayStation originals and conversions of its future coin-ops. Another brand-



The celebratory “one million sold” Saturn pack (above) comes with *VF Remix*. The US Saturn is already on sale (right)

strengthening move from Sony is the PlayStation Club, due to start this September in Japan. For an annual fee of ¥5800 (\$63), members will receive regular “PlayStation Preview” 8 cm (3 1/8 inch)

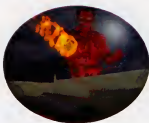


black discs, featuring previews, playable demos, and other news. Current Japanese PlayStation owners can apply for free preview discs for a limited period, “to express thanks to those consumers who have purchased PlayStations in the last six months.”

ng



BULLFROG
PRODUCTIONS LTD
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"Bombs like a Stealth.
Maneuvers like an F-16.
Looks like a rug."



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Big players show at Tokyo Toy Expo

This year, Omacha once again showcased new videogames



The Japanese toy trade's annual bash is a shop window for the videogame industry

The annual Tokyo Toy Show (also known as the Omacha show) is the main event for Japanese toy sellers and manufacturers. Every year, the importance of the videogames sector increases; this time just about every major hardware and software company was represented (except for Nintendo, which stages the Shoshinkai show in November, and Konami, which was apparently unable to attend because of the Kobe earthquake).

Despite the lack of any major hardware announcements, a number of games attracted attention, chiefly *Virtua Fighter 2* on the Saturn, which was making its first public appearance in demo form and looked stunning (see pages 48-53 for more details). The Saturn also played host to sequels to *Clockwork Knight* and Sega's action RPG *Legend Of Thor*, and several coin-op conversions showed up, too: Sega's upgrade of *Hang On* (due in September) looks promising, with decent texture-mapped visuals; Time Warner's *Race Drivin'* adds texture mapping to its crusty (not to mention almost unplayable) Atari Games original; and Taito showed early versions of coin-op shooters *Darius Gaiden* and *Ray Force*. Finally, there was *Guardian Heroes* on Saturn, a fighting game with huge



The main draw for gamers at the Tokyo Toy Show was an exceptionally smooth rolling demo of the Saturn's *Virtua Fighter 2*, developed by Sega's AM2 team

scalable sprites which has the inevitable looks of a standard Neo-Geo fighter with RPG elements.

The PlayStation countered with Taito duo *Ray Tracer* (a fighting man's *Ridge Racer*) and *Zeltgeist*, a Starblade-influenced shooter. *Street Fighter the Movie*, Capcom USA's Saturn and PlayStation fighter of the *Street Fighter*



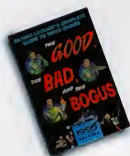
Selected software from the show (from top left, clockwise): a hell sim from Game Arts (Saturn); Taito's *Chase HQ*-style *Ray Tracer* (PlayStation); Hudson Soft's Neo-Geo debut, *Far East Of Eden* (a fighter, no less); *World Advanced War* (Saturn); Takara's second PlayStation title, *Choro-Q*, featuring mini-car racing; the sequel to *Legend Of Thor* (Saturn); Namco's PlayStation soccer game; and Sega's *Hang On GP '95* (Saturn)

Essential reading

The Good, The Bad, and the Bogus: Nathan Lockard's Complete Guide to Video Games

Nathan Lockard

Publisher: Adventure Press
Release Date: Available now
Pages: 266



This is a good thing. A well-researched, energetically thorough review guide on videogames for parents and kids like this couldn't have been done so well by anyone above 20 (NEXT Generation staff excepted, of course) And that's why Nathan Lockard, a

16-year-old high school junior is the smiling author.

Containing 373 Super NES, 361 Genesis, and 47 Sega CD reviews (but none on 3DO, Saturn, PlayStation, Jaguar), this guide amasses 781 total reviews, each broken down into game categories (RPG, action, etc), age groups, and violence ratings. The ratings average about 100 words per game, and describe the game concept, controls, and graphics. You'll find obscurities like *Truxton*, *Death Duel*, and *Target Earth*, but not *Mega Twins* or *Test Drive 2*.

An eight year old could read this book, and that's the idea. It's accessible. However, the ratings, which are always the subject of controversy and disagreement, range from completely wrong to regrettably conservative; and, despite this, *The Good, The Bad, and the Bogus* still manages to be a good general guide for the ignorant.

The History of Computers: A Family guide of Computer Genealogy

Les Freed

Publisher: Ziff-Davis Press
Release Date: Available now
Pages: 153



Everyone needs a book like this — on their coffee table, that is. It's designed in a wide photographic format, it's full of cool, rare photographs, and reads fairly easily.

While not abnormally dense with information, *The History of Computers* conveys most of the important achievements, breakthroughs, and periods of transition in the history of computers, like Charles Babbage's Difference and Analytical Engines; The Kelvin Tide Predictor; The Jacquard Loom; the Remington UNIVAC-1; entire chapters dedicated to both the IBM Personal Computer and the Apple, finishing off with CD-ROM and Windows technology. *History* doesn't have in its index, for instance, the Abacus, which is really the first man-made computational device, but it does, on the other hand explain important things, like how a modem works.

Unfortunately, *History* will be out of date soon. This is not the publishers fault per say, but is the inevitable dilemma of a society bent on technological breakthroughs. The newest breakthroughs in technology, even within the last couple years, aren't up to date.



Bandai gave its remodeled Apple-derived Pippin its first media-outing at the show

movie with digitized actors, was available for dihard *Street Fighter II* fans to try out, and also on show was Psygnosis' latest version of Capcom's *Vampire* (otherwise known as *Darkstalkers*).

As well as 32-bit games, Capcom exhibited a healthy number of 16-bit Super Famicom titles — among them *Mickey And Donald's Magical Adventure*, *Rockman X3*, and *Final Fight 3* — but they were all derivative sequels of derivative sequels.

Bandai took the opportunity to unveil its totally remodeled Pippin

Power Player at the show. Such is the importance attached to Pippin by Bandai that a massive stand was devoted to

the Apple Macintosh-based machine. The styling of the Pippin is now much more attractive than the plain black box and keyboard Bandai showed at Milia '95 in Cannes, France — and much more like an ordinary Mac. Indeed, anyone not aware of the Power Player's history would have been forgiven for assuming that Apple was bringing out a new Macintosh.

The basic Pippin unit, complete with CD-ROM drive, is designed to form the heart of a multimedia system with which a keyboard, modem, mouse, and monitor can be added. Other Pippin peripherals include a joystick with a built-in trackball and a floppy-disk drive that fits underneath the base console.

Although finished hardware was present, there was a distinct lack of quality software — no big developers displayed Pippin games, and Bandai itself had nothing that showed what Pippin could do or indicated that it could reach beyond Apple's historically small game audience.



Capcom offered a range of predictable 32-bit games and also kept the SFC flame alive with a host of sequels

Japanese titles now playing

¥1,000 = \$10.79 (at press time)

Saturn

Ripcord Saga (Sega) ¥5800
Professional Baseball (Konami) ¥5800
Turning Ball World (Tecmo Soft)
Hotblooded Family (Tecmo Soft)
Papayouchan's Big Adventure (Sega) ¥4800
Race Driver (TWI) ¥5800
Twister Puzzle (Konami) ¥5800
Magic Knight Ray Earth (Sega) ¥4800

PlayStation

Arc The Lad (SCE) ¥5000
Ace Combat (Namco) ¥5800
Aquanaut's Holiday (Artlink)
Rayman (UBI Soft) ¥5800
Mobile Soldier Gundam (Bandai)
Professional Baseball (Konami) ¥5800
J-League Winning XI (Konami) ¥5800
Night Striker (Ving) ¥6400
V-Tennis (Toshiba) ¥5800
Phantom (SCE) ¥5800
King's Field 2 (From Software) ¥6300
Zero Divide (Zeem)
In The Heat (Irem/Xing)

breaking

Escom reveals the Amiga's future

The purchaser of Commodore announces its intentions



Two of the new machines displayed by Escom at its Frankfurt, Germany-press conference: the sleek green A4000T (above) and a Commodore-branded PC in mock-up form

Escom, the company which in April became the new owner of the Commodore brand, held a press conference on this spring to outline its strategy for the Commodore technology. **NEXT Generation** was among 60 representatives from distributors, hardware manufacturers, software publishers, and the European press who attended the ParkHotel, Wiesenhutenplatz, Frankfurt, to hear Escom's future plans.

Escom will separate Commodore and the Amiga, with Commodore branding the company's Pentium PCs and the Amiga falling under the control of Amiga Technologies GmbH, a new Escom subsidiary.

Petro Tyschtschenko, general manager of Amiga Technologies GmbH, provided details of Escom's ambitions for the Amiga. In the long term, the firm sees it as the basis for high-end graphic workstations, home multimedia machines, and set-top interactive TV units, but in the short term there seem to be plenty of ideas for the existing Amiga range.

"We see in the Amiga the key to multimedia technologies of the future," stated Manfred Schmitt, founder and chairman of Escom. He also praised the machine's "still unmatched multitasking ability" and claimed the firm had been inundated with messages of support from its "still-strong" and loyal base of Amiga users. Production of the top-of-the-range

A4000T will commence this month, with Escom claiming that 20,000-30,000 have already been presold into retail (Commodore International only ever produced 1,000 of these powerful machines). Remodeled as a mini-tower with a minimalist light-green design, it's far more stylish than its previous incarnation. Meanwhile, production of both restyled A1200 units and CD32 units will also be restarted.

Escom also revealed that every Amiga will now come with Scala MM300, a multimedia presentation program, bundled free in a further indication of its multimedia ambitions.

New Amigas are also promised, the first of which will be a 68030-based A1200 — the newly named A1300. As a result of Escom's close relationship with Motorola, the German company will be first in line for the new 68060 chips, which will be used in a new A4000. A new Amiga chipset is well into development, but Escom refused to release any details. Another Amiga-related development under consideration at Escom is a PowerPC version of the machine.

And the Amiga is headed for a new market: China. The Tianjin Family-Used Multimedia Company, which currently has 80 per cent of the computer game sector in the People's Republic, will build its own low-end Amigas and Commodore 64s for the burgeoning Chinese home market. The world-conquering C64 could yet rise again.

In the long term, Escom sees the Amiga as the basis for home multimedia machines, set-top interactive TV units, and high-end graphic workstations. There are also plenty of ideas for the existing Amiga range



Escom intends to divorce the Commodore name from the Amiga brand and use it for its Pentium-based PCs. Manfred Schmitt, Escom's chairman (top)

"JUST MOWIN'
DUDES DOWN



'TIL THAT
ORANGE MEANY
WAXED ME."

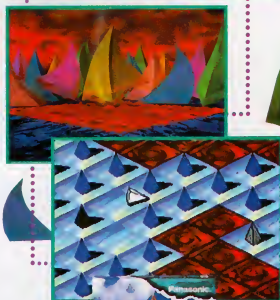
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JOYRIDING

Fly Confirmed Kill on the Internet

You've read my columns about the Internet and the commercial online services like GEnie and the ImagiNation Network. While the Internet is a vast sprawl of information (and downloadable images that make Senator Exon blush), commercial services seem to be the place to play. But Domark Software and former combat helicopter pilot Bryan Walker have aimed their targeting reticle squarely in the goal of making the Internet the place where the cyberelite meet to get beat.

Walker, the producer of the new Domark combat-flight sim *Confirmed Kill*, flew an *Apache AH-64* gunship and saw combat during Desert Storm. And Saddam's finest, if there was such a thing, fired on Walker's helicopter. Luckily for us, they missed. Walker may also be the only computer game producer to shoot down enemy aircraft, a feat he managed by taking out two *Iraqi MI-8* Soviet-made copters.

Walker, a product of the TRS-80 and *Pong*, was always interested in computer games. After joining up with Domark, a company called Integrated Creations called him with the idea to put together a multiplayer flight sim — but unlike *Air Warrior* or *Red Baron*, played on set online services, this would be played over the Internet. IC provided a sophisticated flight model code and communications code, and together with Domark's flexible graphic engine — which *Flight Sim Toolkit* showed off — they knew they had a guaranteed hit. *Confirmed Kill*, a multiplayer combat flight simulator set during World War II, is the product Domark hopes will knock *SVGA Air Warrior* off its throne.

As opposed to a table-based flight model, *CK* uses a "4 Space" flight model, which Walker claims is very simplistic and predictable. "[Four] Space is more demanding on a system; our flight model uses over 4,000 variables and requires a

math coprocessor, so no 486SX (or NextGen 586) processors can run *CK*." *CK* also has accurate ballistics modeling and damage modeling, which includes 30 location-specific damage models. A lucky shot can come through the windshield and kill the pilot.

The most unique thing about *Confirmed Kill*, however, is how you play. Simply log on to Telnet via your Internet provider. Telnet enables you to log onto remote systems through the Internet, so college students at home during the summer can still access their school accounts. The Telnet address for *Confirmed Kill*'s computer is: ic2.infowhy.com.

Type in new for your ID, password: pizza. Download the software from Domark's home page at <http://www.domark.com/domark>.

You'll need to talk to your Internet provider to see how you can get to Telnet and log on to *CK*'s server. CompuServe's flight sim forum (GO FSFORUM) has a whole section devoted to *CK* already; the only other sim to get that kind of attention is *Microsoft Flight Simulator*. Users there can help you get on to *Confirmed Kill* through CompuServe.

Walker wanted to give pilots a sense of unpredictability. "You're thrust into a fishbowl of activity; your job is to find some friends and still accomplish the mission," he says. *Confirmed Kill* is in a public beta test right now. The playing field is composed of four city-states that are constantly struggling; you can jump in to combat or organize a multipilot strike on an airfield; jump in a bomber and have friends man defensive gun positions, or attack ground targets like tanks. Pilots logging on can check on ground battle progress; the more territory you hold, the more points you get.

Confirmed Kill was midway through public beta testing as of July. A new version is now available, which can

Bernard Yee has contributed to *USA Today* and writes regularly for *PC Gamer*, *PC Magazine*, and has authored several books on gaming



by Bernard Yee

transmit voice radio messages over the Net; you can also record specific messages as macros, like "I'm hit" or "clear my six." Hearing pilots' voices adds a whole new dimension to multiplayer gaming. And you'll need as many friends as you can get. When a pilot is shot down, the game doesn't end; he or she has to make it back to friendly territory. A rescue aircraft (which is piloted by computer AI) can come and pick him up, but it's slow and easy to shoot down. The best part? *Confirmed Kill*'s beta testing is absolutely free, and the beta software is also free.

Domark should be running the meter at about (\$2/hr) at this point. A retail box version will come out with enemy pilots (which will be adjustable with different strengths like G tolerance, maneuver preference, marksmanship) and will support IPX network and stand-alone play as well as Windows 95. But you won't see this until January 1996. It will cost approximately \$40 and will come with 10 free hours online.

While not as pretty as *Flight Unlimited*, *CK* should be able to run at 1024x768 with 20 frames per second on a 486/66. When the new 3D accelerator cards come out, *CK* should be able to score about 60-70 fps easily. There will be customizable texture maps on the planes, though.

Cyberspace gadget of the month: Got my *USR Sportster 28.8 K v.34* modem up and running. WinFax and comm support seem fine, and the Sportster is one of the cheapest and most reliable 28.8 K units out there — be sure to check it out if you're considering getting online.

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WIN DWANGO, a direct service network, be a winner? Check it out next month in Joyriding

Arcadia

All of the most pertinent arcade-related news from the leading source in the coin-op business



Marcus Webb is the editor-in-chief of *RePlay* magazine, the US' leading trade amusement magazine

by Marcus Webb



Can't wait to see spurring gobs of blood in *Mortal Kombat* the movie?

Motion Capture Studios

When you film a live actor in motion, then run the film through a specialized computer program which digitizes the action for computer manipulation purposes, it's called "motion-capture technology." To our knowledge, Acclaim Entertainment was the first videogame company to create an entire miniature movie studio dedicated to this process. It's located in its New York State headquarters, and this award-winning facility is also used to create special effects for the movies such as those seen in this summer's Warner Bros. blockbuster, *Batman Forever*.

As you may have heard by now (thanks to Acclaim's publicity juggernaut), Acclaim is also using some of those same *Batman Forever* special effects in coin-op and home videogames of the same name. What you may not have heard, yet, is that Williams/Bally-Midway and Capcom USA are also setting up motion-capture studios of their own, both in the Chicago area. Since Midway's *Mortal Kombat* and Capcom's *Street Fighter* have already appeared in big-screen motion picture format, you can probably expect a continually closer merging of these factories' videogames with Hollywood's output.



NBA Jam TE is being used in NANI's tests — 50 playable hooked-up units

just like Guile), and Rose. Graphics are bright, colorful, almost cartoon-like computer animation; not the super-realistic digitized versions of real actors seen in Capcom's recent hit videogame *Street Fighter: The Movie*.

By the way, Capcom also plans to release *Cyberbots* around the same time, and by press time of this magazine, it'll probably be in the streets. *Cyberbots* is a one-on-one, hi-tech battle of robots vs. enemy machines (or robots vs. robots if you're in a nasty mood). Finally, Capcom's *Night Warriors* is also out for this summer; it's a sequel to *Dark Warriors*.

NANI Hits the Streets

As of late June, the National Amusement Network, Inc. (NANI) finally began field tests of 35 to 45 videogames which were linked into a single network, via phone lines and computer modems. Midway's *NBA Jam Tournament Edition* is being used for the test, with up to 50 units expected to go online at some point during the 90-day trial. Most test units are located in Kansas and Ohio, with a few Kansas City games spilling over the border into Missouri.

What's the big deal about networked games? First, players will be able to enter and compete in tournaments over a period of hours, days or even weeks; their best scores will be sent to a central data processing office for comparison and declaration of a winner. Some fairly big prizes may be offered. Just for comparison purposes, a networked system of trivia-type games in taverns is already up and running, owned by another corporation, and it offers prizes all the way up to a trip to the Caribbean for two! NANI's videogame contests will be local arcade-to-arcade, city to city, regional, national, and — eventually — international in scope. (By the way, the central office which collects the data for all this is run on NANI's behalf by Electronic Data Systems, the outfit originally founded by Ross Perot). One neat thing about NANI is that contest promoters can virtually preprogram any videogame to put the emphasis on any element they like. With *NBA Tournament Jam*, for example, a NANI contest can award point exclusively for free throws. Another contest can give points just for rebounds; or contests could be designed around any other move, scoring technique (like slam dunks), or measurable aspect of gameplay. This will give contest designers (and players) an almost infinite opportunity to experience videogames in new, creative, and challenging ways.

More Video Networks

Strictly on the hush-hush, we're advised that NANI is not the only arcade videogame network slated for a 1995 debut. It seems a major videogame factory plans a 500-unit test of its own modem-linked network this fall. In this case, players from different states and cities will be able to interact in real-time. That is, the winner will not be determined simply via score comparison, but will actually prove their superiority instantly by competing blow-for-blow in the same gameplay environment — although contestants could be physically separated by hundreds or thousands of miles. Also, it's been hinted that this particular factory plans to download new games into its arcade network via modem, rather than physically delivering new computer circuit boards for each new title. Watch future editions of *Arcadia* for more information about all this.

Street Fighter Alpha

Capcom USA newest game, *Street Fighter Alpha*, which is described as a "prequel" to the original title, is now out in the arcades. Ten major characters are included. Among them are four younger versions of the classic characters (with slightly different moves), plus six new characters who are somehow



Batman Forever brings the movie-videogame industries one step closer

"related" to the original cast and story. Four of the new heroes are Guy, Birdie, Charlie (who looks and moves

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Nintendo

Generator

by Mark James Ramshaw

You want the skinny from game developers? Get it here. All the inside news, opinions, and gossip — and none of the fluff



The Ultra 64 hype train just keeps a-rumbling on. This month the hoopla surrounds the game controller that Nintendo will be shipping with its wonder machine. It's not that people thinks it's great or trash, it's the fact that Nintendo won't tell anybody about it. But, inside word has it that the controller is something special, a tool which will enable the player to control movement on the x, y, and z axes. After all, if you're going to produce a machine capable of running the best in 3D entertainment, you need a joystick which gives access to all those dimensions.

But do we really need another kind of joystick — or are the standard Genesis-style controllers and pilot-style sticks enough? Andrew Taylor at Euromax, one of Europe's leading game controller manufacturers, provided some insight: "We've heard the Ultra 64 controller was designed by Paradigm Simulations, who have their background in military simulations, hence the 3D aspect. Some have suggested that it could be similar to Namco's twist controller for the Playstation, although something similar to the Nintendo Virtual Boy system is also a possibility. We're planning to introduce an Ultra 64 controller ourselves, which will support 3D control, along with a Saturn 8-button controller, PC Windows 95 6-button joystick, and a Playstation one. We're working quite closely with software companies such as Bullfrog and Acclaim to produce joysticks which technologically meet their needs. Velocity sensitive control is another area we're working on - we'll have something on the streets by mid-August this year."

Dave Perry, president of console gaming experts, Shiny Entertainment (*Earthworm Jim*), has very strong views about the inclusion of velocity-sensitive control in the next stage of joystick development. "Imagine playing something like *Daytona USA* with a controller that's sensitive to how far you press to the left and right," he enthuses. "Writing a game for a velocity-sensitive controller would be very different for the one's you're used to. It'd be possible to offer so much accuracy and so many degrees of movement — the responsiveness would be great. It's the one change which would affect every single style of game — fighters, driving games, platformers, everything."

Velocity sensitive controllers do exist, of course, in the yoke-stick world of the PC. And the trackball of yesteryear is one of the first examples of a velocity-sensitive game controller. "Yeah," agrees Perry. "The trackball is very good example — but it's fraught with problems. You lose control because you get too much inertia going! I guess paddles were another early example. But of course Nintendo is talking about having a 3D controller — paddles were kinda one-dimensional." Perry is also keen to see the kind of motorized controllers we see in the arcades to make it to the next generation of console controller.

"When you play *Daytona* you can feel the car pushing against you. It'd be great to have resistance motors in a controller, so you can feel it when you push against the curb. That's the sort of thing which gives a real sense of immersion, the feedback keeps the believability alive."

Mark James Ramshaw is free-lance journalist and game consultant who writes for various videogame and music magazines

breaking

NEXT GENERATION September 1995

Datebook

September

AMOA—EXPO '95 (The Amusement & Music Operators Association), takes place on September 21 through 23; New Orleans, Louisiana at the New Orleans Convention Center. This expo, an excellent previewing spot for new coin-op games, is one of the major US arcade shows. Primarily for owners, operators, managers, distributors, suppliers, and manufacturers of arcade games, videogames, pinball games, CD jukeboxes, pool tables, etc., AMOA holds seminars addressing topical management, technical, and marketing issues. For more information call: (312) 245-1021.

NETWORKS EXPO/WINDOWS WORLD '95, September 12 to 14; Dallas, Texas; Dallas Convention Center. There will be exhibitions and demonstrations focusing on network management, interoperability, the Internet, TCP/IP connectivity, client/server applications and enterprise networking — an excellent meeting for showcasing networkable games. Windows World will run concurrently and feature a conference program focusing on new products, technology management, network computing, multimedia, software development strategies, and Windows technical supply. Call: (801) 655-8024

October

PC EXPO, October 3 to 5; Chicago, Illinois, at McCormick Place East. This trade show focuses on the PC industry, the needs of senior-level computer pro's from the Midwest, and has a decent section showing games, more now than Windows 95 is out. Portable computers, graphic user interface applications, networking, client/server and multimedia technologies will also be exhibited. For more information call: (800) 829-3976.

Home & Family Computing Supershow, on October 6-8 at Boston's Bayside Exposition Center and on October 20-22 at Atlanta's Cobb Galleria Center. Open to the public, this show is designed to provide an easy way for families to learn about computer and other high-tech products that emphasize education and entertainment. For more information call: (713) 974-5252.

Autodesk University, October 29 to November 2; San Francisco at the Moscone Convention Center. Open to the public, this conference holds classes focusing on multimedia topics, a broad range of CAD tools, and techniques enabled by AutoCAD and its related applications. Special events include the first annual "Planet Studio" Multimedia Awards and Electronic Festival. Call: (415) 691-1488.

December

Home & Family Computing Supershow, December 8 to 10, at the Dallas Convention Center and December 15 to 17 at the Moscone Center in San Francisco. Open to the public, this show is designed to provide an easy way for families to learn about computer and other high-tech products emphasizing education and entertainment. For more information call: (713) 974-5252.

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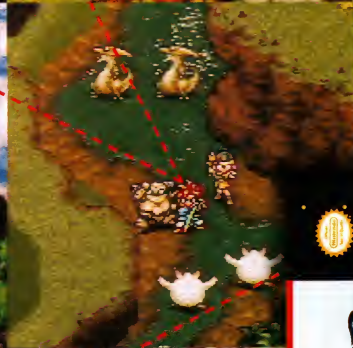
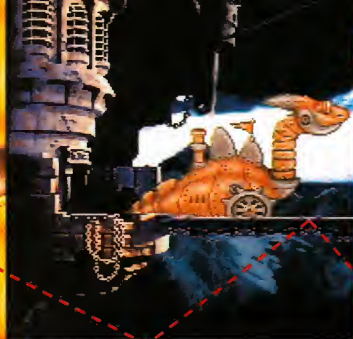
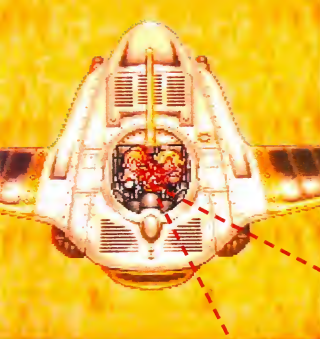
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So what's the deal with virtual reality? When will we be playing it at home? And are the games any good? Forget the sci-fi movies, let's get real. **NEXT Generation** proudly presents a reality check: the definitive guide to VR, past, present and not-too-distant future



As a technology, virtual reality has captured the imagination of technophiles for nearly a decade.

Countless movies, books, and television shows have convinced the public that VR technology is extremely cool, all-encompassing, strangely unattainable and simultaneously somewhat dangerous.

So where does the truth lie? Will VR really step in and change our lives, say, in the next five years? Will it take longer? **NEXT Generation** has taken a close look at the truths behind VR, what it is, where it came from, where it's going, and perhaps most importantly, what's actually available today.

The first problem in any VR discussion is to define exactly what the somewhat nebulous term means. The most basic definition includes the skillful attempt at fooling the human senses into believing that they are immersed in another world. This rather loose definition includes just about anything driving the human imagination, including books, motion pictures, theater, art, even dreams. Other pundits claim that the most important factor is interactivity, enabling users to determine their own paths and fates, a system that can include most computer games and musical instruments. Neither of these is exclusive enough to define the equipment that most people think of as virtual reality. For the purposes of this article, we'll define VR as: Any technology that attempts to fool an individual's senses into believing that they are in another world, while enabling interaction with this world in a way that mirrors reality. This definition is tight enough to filter out movies and most computer games, but open enough to include the wide variety of VR equipment, including HMDs (head mounted displays), gloves and wands.



So where did it all come from? The

history of VR is a journey unto itself, consisting of brilliant flashes of frantic activity, followed by periods of dormancy almost always interpreted as the inevitable death of the technology.

Surprisingly enough is that most of this activity came from the same people time and again. It seems that once someone has entered the

arena of VR development, they never want to leave, and, like many of computing's major advances, the story begins with the death of the vacuum tube.

The attempts to eliminate barriers between man and computer have been underway for just about as long as the computer itself. One of the first pioneers in the evolution of the computer was Douglas Engelbart, who was looking for a way to make computers more accessible for the untrained user. With his background in Navy radar systems, Engelbart realized the video screen could be used to display computer output instead of waiting for a computer printout. Soon thereafter he decided these screens could also enable users to access special devices to input information into the computer. In 1968, after several years of research funded by the Department of Defense, Engelbart gave a presentation at the Fall Joint Computer Conference. While most users were still struggling with punchcards, Engelbart displayed a document on-screen, used the first mouse to select strings of text, and even featured cut-and-paste options. The computer world would never be the same again.



Advances in VR technology promise to change forever the way humans interact with machines. A tester looks to improve optics

ated in

VISION



In 1988 Jaron Lanier, the man credited with creating VR, and Chuck Blanchard, also a member of the VPL team, went on to form Greenleaf Medical Systems, which used VR technology in medical applications



Mark Long and Joanna Alexander used their VR experience to launch *Zombie*

Building off Englebart's earlier work, another visionary, Ivan Sutherland, began to see yet another way to break down the barriers between man and machine. In 1962 Sutherland designed Sketchpad, a computer program permitting users to "draw" on the screen with a light pen. Attributed with the invention of computer graphics, Sutherland went on to push the abilities of the new form to its limits. At a computer conference in 1965, he sparked the imaginations of the entire industry saying "the screen is a window through which one looks into a virtual world. The challenge is to make the world look real, sound real, feel real, and interact realistically." Sutherland went a step further in 1968 as he attempted to shape a virtual world by building the first HMD at the University of Utah. Nicknamed "The Sword of Damocles," this bulky device was the true beginning of virtual reality.

During the '70s, while most experts concentrated on building more and more realistic simulators for the military, there were a few concentrated efforts at pushing the virtual frontier. In 1975, Myron Krueger developed a system enabling people to stand and interact with a computer-controlled projection screen. Although the strange results were intended to be a new form of art, the technologies used in the product ended up becoming incorporated into the virtual reality toolkit. The people who were about to become the driving force of VR were beginning to group together.

In 1980, several universities and businesses began to show interest in the commercial prospects of the new technology. At the University of North Carolina at Chapel Hill, Fred Brooks put together a system that gave students a chance to actually manipulate molecules with their hands, feeling the atomic forces through a feedback device. Thomas Furness, working for the Air Force in Ohio, developed the "Heads Up Display" (HUD) and the "Visually Coupled Airborne Simulator," which projects a 3D target area onto pilots' helmets. In 1981, Tom Zimmerman invented the first data glove, a crude device that measured the flow of light through large plastic tubes. That same year, Jaron Lanier, a programmer who had set up a garage laboratory with money made of videogame free-

lancing, teamed up with Zimmerman, Chuck Blanchard, Young Harvill, and Steve Bryson to start VPL (Virtual Programming Language? Lanier himself is not entirely sure what the initials stand for) the company that would eventually lay the groundwork for the future of VR. Three years later, Michael McGreevy, the head of NASA's newly created Virtual Environment Research Lab, received government backing to produce an HMD he fashioned from two Radio Shack monitors mounted into a motorcycle helmet. Everything was beginning to come together.

In that same year, VPL was in full swing, producing hand-made versions

of Zimmerman's control device, now named the DataGlove, to businesses and universities for about \$9,000 a pop. Shortly after this, the company started production of entire bodysuits that tracked human motion with a price tag of around \$20,000. Each unit worked a little differently than the last, constant upgrades being made as the team discovered new technologies. Business was going quite well for the team, which received the patents for the glove, and in 1984 it received its first contract to work with NASA. At NASA's Ames Research Center, VPL began working with McGreevy's Virtual Visual Environment Display to create a glove that would work with the new system. At roughly the same time, VPL started designing a cheaper version of the HMD, named the EyePhones, to be integrated into full VR systems. During the next few years the company continued to grow, and thanks, in no small part, to Lanier's fervent evangelistic efforts, interest in virtual reality sparked everywhere.

This small company — at its height there were only about 60 people employed — held the patents not only for the DataGlove (the patent was updated in 1990 to include the new fiber optics technology) but in January 1991, for "the manipulation of virtual objects in a computer system according to the gestures and positions of an operator's hand or body part." Technically, this meant that the company was due royalties from any company producing just about any type of virtual reality equipment. Lawsuits began to fly, including one with Abrams/Gentile Entertainment Inc., over the payment of licensing fees due to VPL for the Mattel Power Glove (which was basically an \$80 version of the same glove that VPL had been producing — at a considerably higher price — for years). In 1991, Lanier appeared before Congress at the behest of Senator Al Gore (D-Tenn) to preach on the importance of US

funding of VR research. Although it looked like the little company had made the big time, it was less than a year before everything fell apart.

Although VPL had been successful selling VR systems and technology, the company still relied on backing from venture capitalists. In the late



Companies like Gravity are now able to create seamless 3D worlds, as in this domestic scene in *Bug!* on the Sega Saturn

'80s, VPL borrowed money from the French company Thompson, using its own patents as collateral. When the loan defaulted in October 1992, the company's run was all over. VPL lost all of its patents, the talent was scattered, and the money was gone.

During the next few years, VPL's graduating class started finding ways to use their talent in other fields. Jaron worked in many different communities, helping various companies get their start in the VR world. Chuck Blanchard landed at Greenleaf, Steve Bryson took employment at NASA, and Young Harvill ended up at Macromedia. Even employees of later years went on to start their own VR-oriented shops: Dale McGrew started Gravity, which, after a year or so of research, decided to go into the entertainment software side of VR (making Ascent); and Mark Long and Joanna Alexander started another entertainment development team and called it Zombie (which makes Locus). Three years after the breakup of VPL, people began shifting their efforts from the seemingly unprofitable commercial side of VR to entertainment.

How it all WORKS

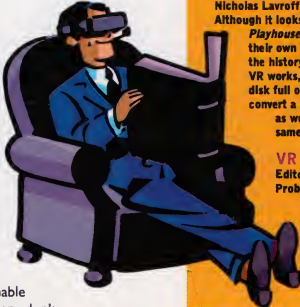
approaches, each improving the realism and/or price point of previous models. The most basic requirements for a HMD are two display screens and a set of optics. The display screens present the information sent by the computer, and the optics (in the form of lenses) permit the user to focus on images that rest about 4 inches from their face. Physical factors must be taken into account when constructing an HMD. Will the headset be too heavy for someone to wear without augmentation? Does it allow for variations in interpupillary distance (IPD)? How much field of view will it offer? All of these factors will determine the realism of wearers' suspended disbelief—or feeling of “actually being there.”

There are several variations in the type of HMD displays presently available. LCDs (Liquid Crystal Displays), like the kind found in portable video games, are the most popular choice in today's designs, offering color output and a reasonable price tag. Unfortunately, today's LCD screens don't



Mattel's successful (although gimmicky) PowerGlove was an evolution of the same DataGlove created by Zimmerman in 1981

Perhaps the most component of VR systems is the enigmatic Head Mounted Display (HMD). Since its invention in the '60s, HMD design and construction has surfaced in several different



Virtual Reality: Through the New Looking Glass

Ken Pimentel and Kevin Telzeria \$24.95
Well written, easy to understand, and thorough, *Virtual Reality: Through the New Looking Glass* is an invaluable resource for beginners and VR veterans alike. In 35 chapters, the authors cover everything there is to know about VR, from its conception and history, current uses and applications, and major research centers, to the technical aspects of how various pieces of equipment actually function. A comprehensive appendix includes a list and description of available VR products, a list of VR company names, addresses, and phone numbers, sample source code for programmers, and a full glossary. If you want to jump into VR, start here.

Virtual Worlds

Benjamin Woolley \$12
This book is a fascinating look at the pure philosophy of virtual reality. Woolley uses tools of classic philosophy to examine the questions created by the existence of virtual worlds. If reality is a matter of perception, then isn't virtual reality just as real as anything else? More of a mind journey than a resource guide, this is one title that is not recommended for light reading. *Virtual Worlds* is the kind of book that keeps you up at night wondering if you really exist at all.

The Metaphysics of Virtual Reality

Michael Heim \$9.95
Slightly more technical the *Virtual Worlds*, *The Metaphysics of Virtual Reality* is another look at how the human condition is affected by the influence of artificial realities. Easy to read and understand, the book takes a forward look at possible changes in personal interaction, information gathering, and life itself. Some of the particularly interesting sections take a deep examination at such diverse topics as sexual implications of William Gibson's *Neuromancer*, the development of computer AI, and the changes in creative thought that are brought about by word processing. A worthwhile read for futurists.

Virtual Reality Now

Larry Steven \$24.95
Another great source reference, though not as geared to the beginner as Pimentel's guide. Basically a hands-on guide, the book contains plenty of info on VR programming, HMD and DataGlove technical information, and other handy tidbits for the VR buff. Early chapters contain a good history of VR, and interesting insight on current VR research centers. Some attention is paid to the future of the technology, and there's even a chapter on the possibilities surrounding cyberspace. This is a good technical guide for the inner workings of VR. A disk with VR demos for the PC is included.

Virtual Reality Playhouse

Nicholas Lavrof \$29.95
Although it looks small for the rather high price tag, *Virtual Reality Playhouse* is a great manual for PC owners who want to create their own VR systems. A small amount of space is devoted to the history of VR, but the bulk of the book is centered on how VR works, and how you can build it at home. In addition to a disk full of PC demos, the book contains instructions on how to convert a Mattel PowerGlove so that it will function with a PC, as well as how to modify Sega's old 3D glasses to do the same. A must own for tinkers and fanatics.

VR World

Editor: Sandra Kay Heisel \$4.95
Probably the best of the periodicals devoted to covering virtual reality, *VR World* is a well-written mag that reports on all aspects of the technology, from entertainment to industry. In addition to great articles on the future, present, and past of VR, the ads in the magazine are a fantastic place to track down any equipment or products you might be looking for. Highly recommended.



In the next few months, three multipurpose HMDs launch for the home PC market. This is the ground floor for the entertainment future of VR, and a competition of design, and consumer decisions in the next year may affect headset design for the next five.

Virtual i/o

One of the strongest entries into the fray is Virtual i/o's i-glasses! A break away from conventional HMD design, the i-glasses! weigh as little as 8 ounces and use partial reflection mirrors to enable users to view their playing world. Gamers can use keyboards, see people around them, and keep track of hint sheets, etc., without having to remove the display. A black plastic shield can be used to block this effect if users want a more immersive experience. The glasses use twin 0.7 Inch LCDs that deliver 138,000 pixels resolution per screen. Field of view is limited to about 30 degrees. The six foot focus keeps eye strain to a minimum, and the curved aspect of the display mirrors eliminates the need for individual user changes. The tracking mechanism gives three degrees of freedom and boasts a sample rate of 60 Hz. The biggest drawback to the unit is its price, about \$800 for the full-tracking unit. VR purists may also find that the open design lets in too many distractions even with the shield in place. In the



end, the i-glasses! aren't the most expensive unit on the market, they deliver some of the best resolution and tracking available, and the light-weight and open design keep disorientation and vertigo to a bare minimum. In addition, the fact that Virtual i/o recycles its funding from TCI, the nation's largest cable TV

operator, ensures that the company has the resources required to weather the financial strain of launching a new product. Definitely one to watch.
Virtual i-o, Inc. 1000 Lenora Street, Suite 600
Seattle WA. 98121. Ph. (206) 382-7410

Force

The most immersive design available on the market, the VFX-1 offers PC users a comfortable design with fair resolution and range of vision. The headset design most resembles a knight's helmet, with a visor that slides down in the front featuring twin, independently focusable eyepieces. Stereo sound is pumped in through padded earphones built directly into the helmet. Tracking is relatively smooth as the piece uses the same basic principle as other HMDs — a magnetic tracking system using the Earth's own EM field as a constant. Everything about the HMD's design is created to completely block out the influence of the outside world. Switching back and forth from VR applications to standard computer controls is relatively easy, requiring the user to slide the visor into its upright position. This design also keeps any of the helmet's weight from resting on the user's nose, a cause of many HMD-related headaches. Resolution is 505x230 pixels displayed on the two standard seven inch LCD screens. Field of view is reported at 35.2 degrees with a horizontal range of 46.4 degrees, and a diagonal range of 56.1 degrees. The unit can be worn with glasses, but the independent focus feature of the eyepieces may correct for some vision problems. The unit also ships with a VR control device called the Cyberpuck — compatible with many of today's more popular 3D action and flight simulation games. The biggest drawback to the unit is its prohibitive price, starting right now at just \$1,000. While it's the most expensive, the unit's inclusion of a fully functional virtual controller makes it well worth the price to VR fanatics.

Force Technologies Inc. 1057 E. Henrietta Rd.
Rochester NY 14623 Ph. (716) 427-8595



In the front of a player's face, a build concept that can cause discomfort in long-term wear situations. The system tracking is moderately fast, with a sample rate of 75 Hz. In a final view, the major advantage of the Cybermaxx is its reasonable price point, \$889. Unfortunately, many players will find that the payoff in comfort and resolution isn't worth saving a few dollars.

Victormaxx 510 Lake Cook Rd.
Suite 100, Deerfield, IL 60015
Ph. (800) 815-MAXX

Victormaxx

Victormaxx's Cybermaxx emphasizes the third aspect of design: field of view. Each of the unit's seven-inch LCDs deliver 180,000 pixel res, and an field of view of 54 degrees. Like the VFX-1, the headset is completely immersive, offering independent focus for both eyes.

Ergonomics are somewhat unwieldy, with a great deal of the weight of the unit on the front of a player's face, a build concept that can cause discomfort in long-term wear situations. The system tracking is moderately fast, with a sample rate of 75 Hz. In a final view, the major advantage of the Cybermaxx is its reasonable price point, \$889. Unfortunately, many players will find that the payoff in comfort and resolution isn't worth saving a few dollars.



New breakthroughs in HMD (head mounted displays) design are beginning to eliminate problems with user disorientation

deliver much in the way of resolution, a problem amplified by a HMD's magnifying optics. Typical LCD resolution stands at 440x240 split between red, blue, and green. This provides developers with a total pixel count of about 35,000. In comparison to the standard VGA display of more than 300,000 pixels, it's easy to see

why designers are frustrated by the limits of the LCD screen. Even so, this is today's favored display method for low cost PC HMD manufacturers.

The CRT (Cathode Ray Tube) alternative eliminates much of the resolution problem, but creates new problems in both price, color and size. CRT's small enough to be implemented into an HMD are not as common in other commercial applications, so finding them at a reasonable price can be difficult. Another problem is the lack of a small CRT display unit that can deliver a full color display. Finally, fitting one of these displays into an HMD requires more complex optical setups and electromagnetic shielding, both of which add size and weight to the final design. There are ways to address all of these problems, but the added expense has kept such devices in the hands of the military or major corporations and beyond the reach of the layman.

One new alternative is to use small moving mirrors to reflect LED output into a users' field of view. Developed by Reflection Technology, this kind of unit can display fairly high resolution, with a small footprint, at low cost. Unfortunately, these systems are unable to deliver anything but a monochrome display, hampering the virtual world's effect severely. Nintendo's Virtual Boy uses this technology to deliver red images onto a black background.

In order to achieve a true sense of realism, virtual reality devices should enable the user to interact with his or her world in a manner as close as possible to the way they interact with the real world. Even with the best stereoscopic display in the world, an HMD wearer forced to use a

keyboard will be constantly reminded that they are in a simulation. Motion tracking eliminates this problem by giving the computer a constant update on the orientation of the headset. As with the display itself, there are a few different ways to achieve this particular goal.

Electromagnetic coils are currently the best way to achieve a cheap and effective





form of tracking, in which two sets of three-wire coils have a small electric charge applied to them in sequence, creating magnetic fields measured by another device. The chief advantage of EM tracking is that it is small, and for the most part inexpensive (nothing in VR is really cheap, yet). The biggest disadvantage is the tendency of the systems to pick up outside signals from televisions and monitors in the area. Ultrasonic trackers and mechanical tracking (the use of cords or wires that move with the head) are other alternatives, but are more suited to specialist needs than mass-market application.

Once visually plugged into the virtual landscape, they need a way to interact with the world around them to continue the illusion of reality, a way of manipulating their environment. There are almost as many different tools for this as there are applications, but most of them fall into the categories of wands, 3D mice, isometric objects, gloves, or body suits. Like everything in virtual reality, each device has its own special advantages and disadvantages, each looking for the ultimate goal of providing an inexpensive way of immersing a user into the virtual world.

Wands are much like the joysticks most videogamers are familiar with, except they come without a base. Available in almost every shape imaginable, they contain variations of the same tracking equipment found in HMDs, with a couple of buttons tacked on. Each

axis of motion (pitch, roll, and yaw) is measured, and sent back to the computer which translates the signals into motion, action, or whatever the programmer can dream up. Wands are relatively cheap, very effective, and perhaps most importantly, they are easy for a new user to understand and operate. Forte's VFX system and Virtuality's



Stereoscopic effects like those in *Ascent* (above) and this demo from *Gravity* (below) can be used to add depth to a virtual world

arcade systems both use wand-like objects for motion.

Much like the standard mouse, a 3D mouse works by moving a small object within a small physical confine. The unit uses standard tracking methods to detect movement in three dimensions, but unlike a wand, users can reach the "edge" of the motion detection area, and as with a standard mouse, they must pick it up and re-center it before moving again. Three dimensional mice are useful for applications requiring accuracy, but are expensive and hard to use. Among others, Logitech currently has a 3D mouse available.

Spaceballs are the most familiar of the isometric family of control units. These devices look like a round ball set into a base, and use optical or mechanical sensors to detect any force put on the ball. If a user pulls the ball straight up, twists it, or rolls it back and forth, an appropriate signal is sent back to the computer. Other isometric units often look like joysticks or plates, and are most useful for streamlined motion control.

Gloves have been a part of VR history since the early '80s. More than any other type of control, gloves enable users to interact with their computer world in a way perfectly mimicking reality. VPL's original DataGlove patented design is still the basis of most

used form of glove technology, and operates by measuring the flow of light through a series of fiber optic cables. When an area bends, less light travels through the cable telling the computer movement has taken place. On the joints of the hand, the cable is often looped or scratched to emphasize motions made in these areas. A motion-tracking device is also included to determine where the hand rests in space. These units are available from several sources, but their prohibitive price (anywhere from \$2,000) has stunted their potential.

The only major exception was Mattel's Power Glove for the NES, which sold for around \$80 and was almost identical to the technology being used in VPL's \$8,000 unit. Despite the fact that these units are no longer sold, they can still be found in the workshops of VR enthusiasts who have found ways to make them work with PCs and Macs.

Other companies have tried a different approach to glove construction by using mechanical exoskeletons. These units are skeletal constructions (a la *Terminator*) using sensors in each of their joints which tell the computer their exact position at any given moment. While they tend to be more accurate and reliable, the size and price of the units will probably keep them from achieving mass market success. One low-cost option is being researched by the University of Florida at Orlando: By placing bands of conductive metal on the ends of each finger and in the hand, this computer receives signals every time a circuit is completed. And although this method is very expensive, it does not yet offer the same degree of accuracy of other systems.

"Tactile feedback" is another glove innovation that's been pursued for some time. In VR simulation, though users can access a glove to pick up objects, his or her sense of touch will not give them the signals that they would receive in the real world, a reminder that they're in a simulation. First pioneered by the Advanced Robotics Research Center in England, the first tactile feedback system to achieve a believable tactile response used small air bladders inside of a glove that could return



Realism can be added to VR simulations through the use of intuitive controllers like Forte's CyberPuck (above), or Thrustmaster's sit-down Flight Control Systems (inset)



pressure in 20 different areas. Because the bladders currently tend to cause glove calibration problems, this method is still being perfected. When working correctly, a user could reach out in a virtual world to touch an object and actually feel the physical response of the object on his or her skin. Other research in tactile feedback is being done with the use of small vibrating coils. Although these coils aren't as realistic in feel as the air bladders, these units are far cheaper to make, and do deliver some believable feedback.

The same technologies used in gloves can be expanded to the whole body. VPL has manufactured a number of units that detect the motions of the entire body. Looking a lot like a superhero outfit, these DataSuits offered users the ultimate immersion.



Regardless of how many different corporations have stepped into the virtual universe, their work means nothing until the average gamer can get their hands on the technology. Fortunately, there are many ways gamers can spend some time on serious VR systems without needing a rich relative.

The easiest and least expensive way is to pay a visit to the nearest location-based entertainment site.

Virtual World Entertainment sites are a strange trip into another world even as you walk into the door. These sites are set up like old Victorian style parlors, with the idea that the player is a member of an exclusive club dedicated to the exploration of alternate worlds. As members of the imaginary Virtual Geographic League, gamers are given a choice of alternate dimensions to explore, currently limited to *BattleTech* and *Red Planet*. After paying their fee, initiates are run through a video-training session starring Judge Reinhold, and work with staff members to confirm they understand all of the controls. Once training is complete, gamers step into the cockpit and enter the virtual world of their choice.

In *BattleTech*, players control a giant robot armed to the teeth in the attempt to lay into similarly equipped enemies. *Red Planet* sets explorers in vast mining canals on a futuristic Martian colony, wherein they race to win with others on hovercrafts. The total cost is \$7 to \$9 for a 30-minute session — only 10 minutes of which is actually spent in the simulator. US sites currently include Chicago, IL, Houston and Dallas, TX, Las Vegas, NV, and Milpitas, Walnut Creek, San Diego, and Pasadena, CA. At less than \$1 per minute, this is one of the best VR deals you're likely to find.

If you're more into the flight sim concept, then the Magic Edge Entertainment complexes may be more to your liking. For about \$13 you can strap into a mock jet fighter and jump into a virtual dogfight. The trick here is that each of the cockpits moves uses hydraulics to emulate the G-forces a pilot would actually experience in flight. Each pilot is given a microphone permitting them to chat with the rest of their squad during the battle. The combination of silky-smooth, texture-mapped images and gut-wrenching motion is surprisingly realistic, making flight fun in and of itself. Each play session lasts about 15 minutes which comes pretty close to matching the \$1/minute charge that seems to be the standard. Currently, the only two centers are in Mountain View, CA, and Tokyo, Japan, so the biggest problem is finding your way to the center.

Disney is currently working on a VR system to be one section of a four-part Aladdin ride, based on the blockbuster film. The current setup included as part of a tour places the user into an

HMD and provides a carpeted bar to hold onto. By twisting and turning the controller, players can fly through the streets of Agrabah for about two minutes. The HMD, attached to the ceiling to prevent the weight from resting on the head of the user, enables pilots to view the action from any angle, including straight down at the carpet itself — where they will see a small pair of Mickey Mouse hands gripping the virtual carpet. One of the most impressive facets of this ride is its amazing sound. As players whiz through the city, they will hear the crowd's yells and catcalls through the ear closest to the virtual actor at the appropriate volume. Presently, however, only 4% of people on tours are lucky enough to be chosen to take a ride...

The Guggenheim Museum in New York featured an exhibit of virtual art that was created by Thomas Dolby and his Headspace Studio. In the interactive piece, users watch and listen to a virtual quartet playing various musical pieces. Using a hand-pointer shaped, the music can be changed by "tickling" different members of the orchestra. While not entertainment software in the classic sense, the experiment does show how VR can be used by an artist to deliver a unique experience.

Arcades are getting in on the action too, with the addition of stand-up or sit-down units from Virtuality. Starting in March 1991 with a sit-down immersive system called the Virtuality 1000 Sit-Down, the company then moved on to release a 1000 Stand-up unit in November of the same year. In March 1994, the updated 2000 series became available, selling to arcades for about \$35,000. There are currently five games available for the 2000 series including *Dactyl Nightmare 2: Race for the Eggs*, a strange game pitting players against each other in an arena filled with stairs, gunfire, and nasty flying lizard; *Virtuality Boxing: Zone Hunter; Buggy Ball*; and *X-Treme Strike*. Earlier this year, Virtuality teamed up with entertainment giant Blockbuster to provide systems for the new Block Party complexes opening up this year.

As of January 1995, Virtuality claimed to hold a 90% market share in immersive virtual reality arcade systems, based on sales of more than 900 units of its Series 2000 machines in 33 countries. The company recently solidified a deal with IBM to produce low-cost (less than \$10,000) systems for developing VR applications. These systems consist of an IBM ValuePoint PC using a specialized operating system, Virtuality's own V-SPACE development software, an accelerator card, and the same Visette2 HMD used in the series 2000 arcade systems. In October 1994, Virtuality also



DataGloves (left) offer users a familiar way of interacting with the computer by following natural hand movements (bottom right). The **SpaceBall** achieves the same result in a different manner (top right)



Gamers immerse at Magic Edge (top), Virtual Worlds (middle), and Virtuality arcades

Group has the strangely named Mandala System, a unit using video cameras to put an image of the user into a live-motion world. Users stand in front of a monitor and can then interact with objects on the game screen by actually performing the real-life actions. There are installations placed at science centers, museums, and sport halls of fame all across the US and Canada, each with their own special program. Current options include a goaltending trainer at the NHL Hockey Hall of Fame in Ontario, a tour of the Starship Enterprise, and The Oregon Museum of Science and Industry, and recently, an electronic carnival also toured in the summer Lollapalooza '94 concerts. While not as immersive as the cockpit or HMD simulations, the Mandala system does have the advantage of being one of the few types of VR entertainment not requiring the user to strap into any hardware.

Although they're still fairly expensive, HMDs and other VR devices are beginning to reach an affordable level for the PC. Three manufacturers are in the running to produce an HMD that will take over the home market, each company defining its distinct philosophy on what the average user expects and needs from virtual reality. While it remains to be seen whether users are ready to part with between \$500 and \$1,000 for their own VR system, these companies (see page 40) have made the first step toward mass-market use.

PC users can also get a taste of several virtual control devices. SpaceTec's Spaceball Avenger is an isometric device for the home that

announced a licensing agreement with Atari for the production of a mass-market, console-based VR game (NG 8). Prices for arcade gameplay vary, but most locations are charging \$4 to \$5 dollars per play lasting anywhere from about three to seven minutes. Series 2000 units can be found in large chains including Blockbuster's Golf and Gaes, United Artist Theaters, Nickels & Dimes, and Namco's Wonderland arcade.

For a completely different take on virtual reality, The Vivid

Want to play a virtual reality game at home? Go ahead. Already a fine selection of high-end PC games exist that boast VR compatibility. Expect more such games come the launch of the systems profiled on page 40, but for the moment, these are our top 10 escapes from reality.

1 *Flight Unlimited* — Looking Glass

One of the more recent releases, Looking Glass' *Flight Unlimited* is the game you want to show off to your friends. Full tracking support

enables pilots to look in any direction from the inside of their plane down onto a photo realistic landscape. Game options include simply flying around your new world, flying through aerial obstacle courses, or jumping into series of acrobatic lessons that are guaranteed to make you forget where you are. More than just a showcase for HMDs, *Flight Unlimited* creates a believable flight atmosphere by managing real-world physics models and full atmospheric effects in five different environments. If you've got a headset, you've got to try this game.



2 *Delta V* — Bethesda

Delta V puts players in the shoes of a high-tech netrunner looking to make big bucks in a dangerous profession. Basically a shooting game in a pipe, the game consists of the central character running at high speeds through bizarre obstacle courses looking for data and powerups, while trying to avoid the constant assault of increasingly aggressive enemies.



Due to the high speed nature of the game, it will take you a little while to get used to moving your field of view to anywhere other than straight ahead, but the strange and beautiful landscapes of the cyberworld make it worth taking a little extra damage. A good, straightforward and simple action game.

3 *Ascent* — Gravity

Noticing how reticent new users were to take advantage of an HMD's tracking functions, the designers at Gravity created a title that would make head motion part of gameplay. In *Ascent*, you enter a strange craterous world filled with floating platforms. By looking at a platform and hitting the fire button you soar through the air in giant leaps, making your way through increasingly complex pathways. Later levels include disappearing platforms, enemies that must be avoided, and secret undiscovered passageways. In addition to tracking support, the game also takes advantage of 3D displays, all of which adds to *Ascent's* unique feel.

4 *Descent* — Interplay

All of the big Doom-style games (*Doom*, *Doom II*, *Heretic*, *Dark Forces*) work well with a good HMD, but Interplay's *Descent* is probably the best of the bunch because of its inherent 3D environments. Flying through the dark passageways of mining colonies, you'll run into a horde of nasty robots and scores of cool weaponry. Graphics are sharp and colorful, sound is loud and aggressive, and the action is constant. The headset completes the effect of being there, and the game becomes dangerously absorbing. If you've got the headset, make sure you go the extra few bucks and get Gravity's four-button controller or Forte's Cyberpuck to streamline the interface. Disorientation has never been so much fun...

5 *Wings of Glory* — Origin

Another flight simulator, but this time with plenty of bullets. Although it requires one monster of a system to run at a decent speed, *Wings of Glory* is the perfect forum for headset action. As a young WWI pilot, you're sent out on combat missions at the controls of several vintage aircraft. Motion tracking comes in very handy when trying to follow the

(continued on page 44.)



ng special



(continued from page 43.)
motions of an enemy intent on making swiss cheese out of your already unsteady mode of transport. Not the visual feast that *Flight Unlimited* offers, but the action makes it worth a look.

6 Zephyr — New World Computing

In a high corporate future, various companies do battle for rich planets, not in the boardroom, but in vast arenas. As a free-lance pilot, you'll make deals with the big boys and step into an all-out 3D combat with the power of tomorrow's tank, the destructive Zephyr, at your command. Plenty of high-powered weaponry, scores of different game worlds to explore, and a game show feel that add up to solid gameplay. The addition of tracking not only increases the feeling of immersion, it also makes it much easier to keep track of who's attacking and when. Not the most cranial of titles, but a perfect game for a quick-action fix.

7 Terra Nova — Looking Glass

Although it won't ship until this winter holiday, this is the game for VR enthusiasts, and it had to be included on the list. Basically a futuristic squad simulation, *Terra Nova* gives players a team of men equipped with the best killing tools the future has to offer, on a photo-realistic game world with a mission of destruction. There are fantastic special effects, like mobile drones that can be sent to pinpoint enemy locations, booming explosions and other sound effects, and breathtaking graphics that will keep you so distracted for the first few games that you spend more time looking around than you do fighting. This is the future of VR.



8 Magic Carpet — Bullfrog

A fantasy adventure with a flight simulator feel, *Magic Carpet* is one of the best VR applications currently available for the PC. As a fledgling magician, players must collect magical power and new spells to expand their area of control while avoiding the mechanization of enemy sorcerers. With land-effect spells like Volcano and Earthquake, headset users can watch from every angle as the ground splits asunder revealing a new area for them to explore. Great graphics, great sound, great gameplay, all within a smooth virtual environment.

9 Locus — Zombie

Reminiscent in many ways of the cycle scenes in *Tron*, *Locus* is a realtime multiplayer team game that sets players against each other in futuristic arenas. Each arena is in the shape of a 3D object (spheres, taurus, etc.), with the playing field laid out on the inside surface. This creates an infinite play area that can have your opponent above you, beside you, or just about anywhere. Players use grabbers on the front of their magnetic cycles to pick up a ball, and then attempt to throw the ball into an opponent's goal. Three goals



eliminates the opponent. Like *Ascend*, this is a game designed specifically for use with an HMD, and it shows through immediately.

10 Daggerfall — Bethesda

Roleplaying in a virtual world. With full, 3D landscapes, believable computer personalities with memories, personal ownership of houses, dungeons, and ships blending together, *Daggerfall* creates one of the most realistic gaming universes ever. With the game's HMD support, it's like walking into a fantasy novel. If ever a game will make people forget that there's a real world around them, this is the one to worry about. Beautiful graphics for magic and monsters complete the illusion and leave you completely spellbound. This is a dangerous treat for roleplaying fans.

connects to a standard serial port and enables users to move on any axis with a simple push. The unit sells for about \$150 and includes software support for several of today's more popular first-person shooters. Logitech's \$99 Cyberman is another isometric unit resembling a standard rotational mouse set on top of a short rod. In addition to movement, a small battery powers a feedback device that can be set up to work as a damage or bonus indicator. Logitech also markets a true 3D mouse selling for less than \$1,000 and which uses an active tracker to deliver movement on all axes.

Nintendo's Virtual Boy is another attempt to market an HMD for the masses. Although its lack of tracking keeps the system from being a true VR device, there's no doubt that this unit will draw a great deal of media attention to VR technology. For more information see NG 8 or reviews on page 93.



Speculation about the future of VR has brought up very serious questions — and others that aren't so serious. But whenever a technology is misunderstood, as in virtual reality or the Internet, public views can become misconstrued, even when there aren't any real (or virtual) threats. Questions about the health risks of VR, the

psychological effects of long-term isolation, and even possible sexual abuses of the technology were raised years before simulations had come close to the home.

On the most basic level, the long-term effects of having two monitors strapped only inches from your eyes is in question. Multiple studies have been done on the effects of long-term exposure, and in most cases it seems the ability of one's eyes to withstand the screen actually outlasts other basic body functions. Many users have also reported vertigo and nausea as a side effect of HMD use. These effects are caused by discrepancies in what the eye is seeing and what movement the inner ear is reporting.

Headsets weighing more than the head can comfortably support often intensify these effects, as do lag times between the motion of the head and the resultant display. Eye strain is also a negative side-effect. The average person is used to focusing about 11 feet in front of them. If forced to look at objects too close or too far away for too long, the muscles in the eyes may become fatigued, and the user can suffer vision problems and headaches. Mark Long, cofounder of *Zombie*, clarified the issue in a recent interview with the *Electronic Entertainment* magazine: "You're doing something unnatural to your eyes when you put on a helmet. It tugs on your eyes. If the design is bad, it could have an effect on the vision of kids whose eyes are still developing." Many companies have tried tackling these problems in various ingenious ways, pushing ever closer to the goal of a safe and comfortable HMD.

Several studies have been run in the attempt to determine the effects of long-term isolation on human psychology. The question here is, if a person spends all of their time in a fantasy world, will they be as able to relate with people in the real world when they emerge? Here, one must compare the current effects of television, video games and other forms of entertainment, and the interaction required in full VR experiences can eliminate a great deal of the "couch potato" syndrome associated with long-term television use. As with every new form of entertainment, questions of censorship immediately arise. Several talk shows have been centered on the



The Vivid Group's Mandala System brings players into other worlds without helmets

possibilities of virtual sex or pornography, and once again, this becomes a question of the individual, not the technology. People will purchase the type of entertainment that appeals to them. As long as there is a market for a product, businesses will find a way to deliver it. It's far too early to begin imposing restrictions on an industry still in its absolute infancy.



Now that

VR is emerging as an entertainment technology, there's been enormous public interest in what the future will bring. Research

continues at the same labs that have been seen as an integral part of the creation of VR, while new businesses open every year hoping to ride the financial wave if and when the technology takes off. What elements will be necessary for the future of VR? Some people seem to think that the HMD, today's symbol of virtual reality, may be obsolete before it's even properly built: HDTV (High Definition TV) will deliver huge pictures with resolution so perfect that you can see every eyelash on a person's face — huge wall-sized screens could display incredibly believable virtual worlds without the drawbacks of a headset.



Arcade goers will soon get a taste of some novel VR fantasy in Virtuality's newest title, *Dactyl Nightmare 2*

Another new possibility (being worked on by The Human Interface Lab of Seattle, WA) is a system that fires low-powered lasers through the eye, actually "painting" an image onto the retina. Resolution-wise, this technique has the potential to deliver pictures that stimulate every rod and cone so

as to create an image that is "perfect." Soon researchers hope to have a unit the size of a pair of sunglasses which will enable users to see normally, but can be used as an augmented reality device that will throw useful images, such as maps, written instructions, or the time, onto the wearer's eye.

Other industries are already finding countless applications for VR, and there's no doubt that it has already become invaluable to certain industries. The massive airplane manufacturer McDonald Douglas has already begun to build prototypes for new aircraft in a virtual simulator, saving the

company the cost and danger of building and testing several different test models. In these virtual constructions, engineers can look around all of the spaces, check for possible strain areas, and test the craft in a virtual wind tunnel. Architects are also using VR to build houses that they can walk around in and examine. If a wall is in the wrong place, they can use a DataGlove to reach out and move it to where they want. When everything is as it should be, the designer can print out a blueprint of what the finished building should look like. As time wears on, VR will make it possible for almost any dangerous or financially stressful project to be tested thoroughly in a computer simulation.

The Massachusetts Institute of Technology continues to research the medical applications of VR as do companies like Greenleaf Medical Systems. Tomorrow's doctors may pilot small remote controlled drones capable of repairing internal injuries without extensive surgery. Doctors may use headsets to examine areas of the body from the inside, and gloves to control the actions of tiny surgical units. DataGloves are already used to give people who can't speak a way to communicate, and DataSuits are being used to train athletes and are used in rehabilitation.


The University of Utah is dedicated to finding better ways of delivering the sense of touch in a virtual environment. Current projects involve huge devices both expensive and unwieldy, but the future will bring sleek DataSuits enabling users to feel the pressure of touching a computer-generated wall or chair. Interaction with detailed objects will become easier as sensitivity of the devices increases. Virtual worlds will be detailed enough to enable users to pick a blade of grass, to open up the watch on their arm, to repair even tiny problems on a spacecraft far away.

Perhaps the most exciting possibility, however, involves the future of interpersonal use. The University of Central Florida is currently involved with several projects that foreshadow a future in which you could interact with visual representations of others in a cyberspace. The university's efforts are centered on creating sites where children can go to interact with a virtual world, and each other, from any physical location in the world.

But let's cut to the chase: The gaming possibilities are endless. Virtual Worlds already has units enabling players to do combat in the *BattleTech* universe with units in two different cities. Someday you will be able to slip on your HMD and DataSuit and play games with people all over the world as if they were standing in your living room with you.

The future is now accepting applications.





If you have one of those
cute dogs
that hangs its head out the window,
don't bring it.



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Sega's plan

Nine months after launch, Saturn is still regarded by many as a second-class system compared to Sony's PlayStation. Is this a machine that should have stayed inside Sega's R&D labs, or have developers simply got a lot to learn? **NEXT Generation** looks at Sega's efforts to realize Saturn's potential

of attack

Sega now faces a very tough test. Although it claims that more than one million Saturns have sold through Japanese stores — and the US version of the machine already has a head start on its competitors — the future of the 32-bit system now rests on the uncomfortably familiar maxim, “software sells hardware.” Put in simple terms, the next six months is going to be a crucial period for the Japanese company.

Just as *Virtua Fighter* singlehandedly sold the Saturn when it was released in Japan last November (98% of all owners bought the game), it was *Daytona USA* that sowed the first seeds of doubt in the minds of gamers eyeing Sega's 32-bit machine. With its clumsy visuals falling well short of Namco's PlayStation conversion of *Ridge Racer*, the Saturn has recently been the subject of much skepticism in the game development community. After all, if Sega's own programmers can't get the machine to perform well, what chance has the average third party developer?

Anxious about the general lack of confidence in its system, Sega set about rebuilding the Saturn's credibility. At the Sega DevCon in the US held earlier this year, the company showed off its Sega Graphics Library, developed by R&D division AM2 to make better use of the machine's 3D graphics (it was actually touted as a whole new operating system in Japan). The potential of the new graphics libraries was authenticated by a rolling *Virtua Fighter 2* animation that has since been heavily publicized in Japan as a teaser for the Saturn game expected later in the year.

AM2 head Yu Suzuki is responsible for the conversion of Sega's arcade games. Currently overseeing work on Saturn *Virtua Fighter 2*, he concedes that converting high-end coin-op games does present a considerable challenge: “The main problem is that we don't really think about the home version when we're developing arcade games. It's very important to make full use of the power of high-end arcade machines, so converting such games to less powerful hardware always requires intricate programming to obtain the best possible results. Despite this, we always aim for a perfect translation.”

Sega's rich heritage of superb arcade games is undoubtedly its strongest card. In Japan, a conversion of one of Sega's coin-ops is guaranteed to sell at least 500,000 copies. However, as the company continues to strive for higher levels of graphic excellence with its Model 2 (and, soon, the PowerPC and Martin Marietta-powered Model 3) coin-op hardware, the Saturn is already finding it hard keeping up with the pace of technological advance.

“We don't think that next generation software development has been perfected yet,” reckons Sega's Yoshi Ishii, producer of several Saturn games, including the spectacular *Panzer Dragoon*. “There's enormous pressure on us at the moment to get great games out, but we're still on the upward slope of the learning curve.”

Unlike the PlayStation, the Saturn does not contain a dedicated geometry engine for calculating polygons — instead, the twin CPUs handle all the calculation, and the VDP1 chip, in conjunction with the frame buffer, draws 3D objects to the screen as distorted sprites. The decision to design the



Sega's Yu Suzuki (top) is supervising the Saturn conversion of *Virtua Fighter 2* (above). Even at this stage, it represents a vast improvement over both *VF* and *Daytona USA*

Saturn in this way was an attempt to cater for all needs: the two SH-2s were included to give the machine some serious computational power, with the VDP1 processor providing 2D performance that would outclass anything its rivals could offer. According to Sega, it was a question of “balance.”

“The SH-2 was chosen for reasons of cost and efficiency,” claims Kazuhiro Hamada, section chief of Saturn development at the time of the machine's conception. “The chip has got a calculation system similar to a DSP but we realized that a single CPU would not be enough to calculate a 3D world.”

As well as the VDP1 chip, the Saturn has a second video processor unimaginatively

Initially produced to demonstrate AM2's new SQL (Sega Graphics Library), this early VF2 demo runs at 60 fps at 704x481 — the highest resolution possible on the Saturn



ng hardware



Virtua Fighter 2 on the Saturn is due in December. So far, Sega has finished the four most complex characters in the game: Rau, Pai, Lion, and Shun. With two characters onscreen, the game runs at around 30 fps



called VDP2. This gives the machine simultaneous playfields which are drawn completely independently of the CPUs — it's possible to have the CPUs calculating

the maximum number of polygons, for example, while the VDP2 draws parallax backgrounds or even Mode-7-style distorted ones. This is a combination that the PlayStation would find tough to follow.

The VDP2 chip is seen by many Saturn programmers as the key to really harnessing the power of the system. "It's not difficult to use VDP2," says Kazuhiro Hamada, although

he admits that "it takes plenty of time to find an effective use for it. There are so many different ways in which it can be employed."

Scrolling and sprite handling is the area in which Sega is confident its machine will outshine the PlayStation. "To be honest, VDP1 is not powerful enough to replicate the latest polygon arcade games," concedes Hamada, "but for sprite and scrolling games it's fine."

Sega's ST-V (formerly Titan) arcade board, effectively a low-cost arcade PCB (printed circuit board) designed around the Saturn's internals, will make the most use of this 2D prowess. Although the arcade hardware is slightly different from the mass-production machine (and the development tools are different) this sharing of technology could prove to be a valuable hit factory for Sega. But it's not without its problems.

"The conversion from ST-V to Saturn is not quite as easy as you'd think," confesses AM2's technical research manager, Tadashi Kawamura. "The ST-V board and Saturn have, of course, some common points and parts, but conversion from the arcade board to the Saturn requires that some parts of the game have to be reprogrammed."

And, despite the success of Namco's *Tekken 2* (in US arcades) in both the arcades and on the PlayStation, this type of undertaking is notoriously risky due to the rate of technical change in the coin-op market. What would assure success is some quality games that can take advantage of the Saturn's sprite-based hardware.

"The ST-V board is designed primarily for fighting games, driving games, and sports games," elaborates Kawamura. "We are doing some specific games for the arcade — after all, there are some games that don't work so well in the home — but usually when we release a game for the ST-V, we are thinking of it making the journey to the Saturn."

Despite the Saturn's ability to produce sophisticated 2D, what most developers are striving to achieve is smooth, fast 3D, and so



Yoshi Ishii is one of 501's most respected software producers. Titles to his credit include Fantasy Zone, Hang On and Out Run

far many have been unimpressed with the results they've managed to obtain.

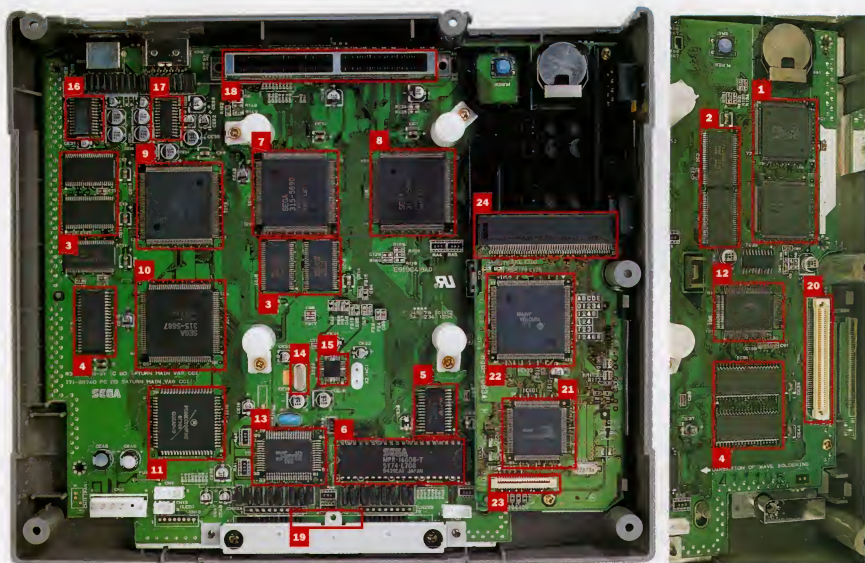
Keiji Okayasu, software development chief at Sega Of Japan, acknowledges that there is

"People complained about the glitchy polygons in Virtua Fighter. For the sequel we're using different techniques"

mounting dissatisfaction among certain developers — and, more importantly, among Saturn owners — about the quality of the machine's 3D features. "A lot of people complained about the glitchy polygons in *Virtua Fighter* during the replays, so for the sequel we're using different techniques," he explains. "Making the OS demo was a useful process, but converting *Virtua Fighter 2* will be a very different task. For example, in the

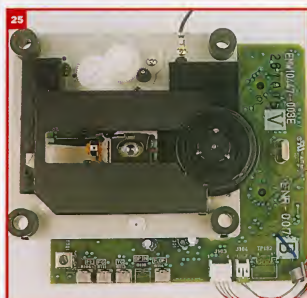


Inside the Saturn



Taking a screwdriver to the Saturn reveals a lot of silicon. Hidden beneath the CD interface lie the twin SH-2 CPUs, SCU, SDRAM and RAM (see inset, far right). The CD-ROM mechanism (below right) contains 4 Mbit of buffer RAM and even more chips...

- | | |
|---|---|
| 1 2x Hitachi SH-2s @ 28.6 MHz, 25 MIPS | 12 System control unit @14.3 MHz — connects the Saturn's three buses |
| 2 16 Mbit SDRAM for SH2s | 13 System manager and peripheral control — 4 bit Hitachi chip including battery back-up |
| 3 12 Mbit SDRAM for VRAM and frame buffer | 14 Crystal oscillator |
| 4 512K sound DRAM for 68EC00 | 15 Integrated circuit clock controller |
| 5 32K SRAM for battery back-up | 16 Digital to analogue converter |
| 6 512K IPL (Initial program loading) ROM — initiates the Saturn's boot-up sequence | 17 RGB encoder (made by Sony) |
| 7 VDP1 32-bit video display processor, sprite processor and texture-mapping engine with dual 256K frame buffers | 18 Cartridge slot |
| 8 VDP2 32-bit video display processor with five simultaneous scrolling backgrounds and two simultaneous rotation fields | 19 Connector for joypads |
| 9 Processor controller & LSI for graphics | 20 Connector for CD interface |
| 10 Saturn Custom Sound Processor (SCSP). Contains Yamaha FH-1 DSP (11.3 MHz) and DRAM controller for sound processor | 21 SH-1 processor for CD drive |
| 11 Sound CPU: Motorola 68EC00 @ 22.6 MHz | 22 MPEG interface |
| | 23 CD drive board interface |
| | 24 100-pin CD drive board connector |
| | 25 Double-speed JVC CD-ROM drive with 320K/sec data transfer rate |



ng hardware



Sega's Tadahiro Kawamura, manager of AM2's technical research section, developed the new SGL development tools. Prior to that he programmed the *Virtua Racing* coin-op



Previously, the Saturn development system included a P-Box, or programmer box (left). Instead of a production Saturn, in the new system the P-Box has been replaced by SOA's CartDev box, which sits below the Saturn, and a cartridge which interfaces with the PC or workstation. Sega's "official" development set-up (right) includes an SGI Indy, *Softimage*, CartDev, SNASM2, and AM2's SGL.



demo there's no player control, so it was possible to get it up and running at 60 fps. It will be much harder to do that now we have two characters on-screen."

When Saturn projects like *Virtua Fighter 2* and *Virtua Cop* were being planned as early as last year, AM2 chief Yu Suzuki requested that a "smarter and more convenient" set of development tools be produced to assist in the conversion of arcade games to the Saturn and help with general software development. With Sega of America and numerous third party developers, Sega of Japan carried out research in order to find out which aspects of the present development tools should be improved.

This was the impetus behind the development of the Sega Graphics Library — produced by Tadahiro Kawamura. Combining tools for modeling, animation, textures, and fractal graphics with extra programming

information for the central processors (juggling a main CPU and a sub-CPU is one element Sega has been especially keen to address), it should provide a significantly enhanced development environment.

The Saturn's complex design has done it very few favors. With seven independent processors, getting the whole architecture to operate efficiently is not easy. SN Systems' Andy Beveridge, designer of the PSY-C development system for the Saturn (as well as its PlayStation equivalent), admits: "It's a real coder's machine. For those who love to

have to develop its own set of libraries to exploit the hardware efficiently.

"The Saturn is very fast at drawing single pixels using its processor, while the PlayStation has to go through its polygon engine," explained the company's lead Saturn programmer. "That gives the Saturn programmer more flexibility. However, the Saturn does have the tendency to write polygons that are not seen. Overall, though, the Saturn has more calculating power than the PlayStation."

The Saturn can boast superiority over the PlayStation in CPU throughput. Granted, Sony's machine is able to calculate more geometry and display more polygons, but in terms of computational power the Saturn definitely has the edge.

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"The conversion from ST-V to Saturn is not quite as easy as you'd think. Some parts of the game have to be reprogrammed"

Tadahiro Kawamura, technical research manager, AM2

get their teeth into assembly and really hack into the hardware, the Saturn will probably pack a few surprises. It's going to take some time before we'll see what it can really do."

Los Angeles-based developer Scavenger (responsible for the superb *Subterrania* on the Sega and Saturn titles *Vertigo* and *X-Men*) recognizes the Saturn's strengths, although it



Model 2-based games such as AM2's *Sega Rally* are programmed in assembly and use vastly more powerful hardware than Saturn



The official development system



Cross Products' Managing Director Ian Oliver (right) and General Manager Jim Woods. The company is now owned by Sega

and *Carrie Command*, Cross Products has grown into a 25-person strong company which specializes in cross-platform development systems.

"I can remember hating the tools we used back then," recalls Managing Director Ian Oliver. "So we joined up with our neighbors, Vektor Grafix, and set about writing our own development software."

After designing systems for home computers and consoles including the Amiga, ST, SNES, and Genesis, Cross Products was bought by Sega Of America more than a year ago. Since then it has worked closely with Sega to design an efficient authoring system for the Saturn.

Cross Products' Saturn system — which, like all its development software, comes under the SNASM2 label — uses a mass-production Saturn (previously it was a bulky programmer box supplied by Sega) with a switch that permits the user to toggle between the Saturn's internal drive or a CD emulator. Connected to the Saturn via the cartridge port is SOA's CartDev hardware which effectively turns the production Saturn into a development station. This, in



Cross Products' development system works with SOA's CartDev box (left) and also the company's new Mirage CD emulator (right)

turn, connects to a PC or SGI Indy via SCSI.

While Sega supplies licensees with full documentation on Saturn hardware, graphics and sound libraries, Cross Products supplies the CartDev, CD emulator, and a modified Saturn, plus the full suite of development software (including assemblers, linkers, debuggers, C compilers, etc.).



UK-based Cross Products is the Sega-owned firm behind the Saturn's official development system. Formed by former game coders from Realtime Games (responsible for classics such as *StarStrike*

The alternative: Psy-Q

T Bristol-based company SN Systems has not only produced the official PlayStation authoring tools but is also responsible for a Saturn development system which does away with Sega's CartDev box and uses a simple cartridge which plugs into a Personal Computer.

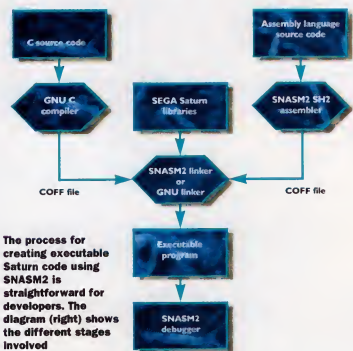
The Psy-Q system uses SN System's own C compiler shell

program and its proprietary assembler and linker. One of the most important benefits of the system is that it works in a similar way to the company's Psy-Q PlayStation kit, so now developers don't have to re-learn an entirely new system if they port their project over to the Saturn.

Psy-Q is priced at a similar level to SNASM2, with the basic system costing around \$4,530.



SNASM2 authoring for Saturn



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a stump at.

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ON YOUR OWN SUPER
THE-ART 16-BIT
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HEM. SO GO AHEAD-
SLOT-- K.I. IS HERE!!

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Fold

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Fold So "X" Meets "Y"



Fold



...uh we mean
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er...reptile-like.



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so bag the new system, bud.

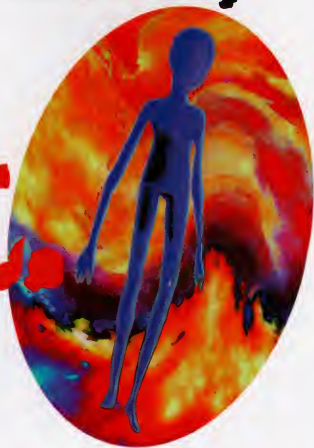


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Destruction Derby **PS-X** WarHawk **PS-X** Urban Decay **PC** Solar Eclipse **Saturn** Thunderhawk II **PS-X**
Twisted Metal **PC, PS-X** The Darkening **PC** Rebel Assault II **PC** Yoshi's Island **Super NES** Virtua Cop **Saturn**



"Sui generis" exclusive sneak previews

Once more we've checked out development all over the world for the best and most innovative titles and the teams that are putting them together. For an up-to-date examination of the titles that are available today, be sure to check out our review section, finals, on page 88.

58 Destruction Derby **PS-X**

Real world physics, fast cars, and lots of property damage. Nice

65 WarHawk **PLAYSTATION**

A 3D-environment shooter that should appeal to arcade and sim fans alike

66 Urban Decay **PC**

This has all the depth and grit to take "virtual" movies into the big-time

68 Solar Eclipse **SATURN**

Crystal Dynamics dreams up a cool, fully upgraded *Total Eclipse*

71 Thunderhawk **PLAYSTATION**

Gameplay will decide if this is an excellent upgrade from the Sega CD

72 Twisted Metal **PS-X, PC**

This delivers the look and feel of *Cruisin' USA* with *Doom's* firepower

75 The Darkening **PC**

Graphic adventures and interactive movies just got a little darker

76 Rebel Assault 2 **PC**

LucasArts' fast-paced FMV shooter nears completion. Is it a repeat?

78 Yoshi's Island **SUPER NES**

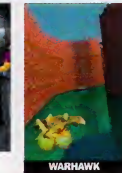
Mr. Miyamoto returns (as producer) with *Super Mario World's* sequel

80 Sports Feature **MULTISYSTEM**

The rise of 32-bit systems may cause the breakup of present-day dynasties

84 Virtua Cop **SATURN**

Sega brings its first light-gun title home. Now all it needs is a light gun



ng **alphas**

Destruction Derby

It's the most impressive PlayStation game yet: State-of-the-art 32-bit racing combined with hit-and-run, multicar collision playability

Format: **PlayStation**
 Publisher: **Sony**
 Psygnosis
 Developer: **Reflections**
 Release Date: **November**
 Origin: **UK**



Smoking engines is a sign that a car is in deep trouble (sorry, there is no pit stop). Time to head in for an easy kill and more race points

Destruction Derby makes no secret of its gameplay hook: complete and total devastation. "You know what it's like if you're playing *Ridge Racer* or *Daytona*," says producer Tony Parks. "If it gets to the stage in a race when you know that there's no way you can win, you start fooling around by crashing into the barriers or trying to knock your opponents off the track." He's right, of course, and it's the concentration of this singular gameplay element in *Destruction Derby* that elevates it above the common herd of generic racing games and into a class of fun all by itself.

There are three game modes. First, Stock Car Racing is a simple race option — score points for finishing as close to first place as possible. At this stage in



Each point of contact is individually monitored on the status indicator (bottom right). The green lights indicate that so far, your car is OK

development, there are 12 individual tracks to race (with no mirror-image design shortcuts). Second, Smash-Up Racing is essentially the same game, but with extra championship points awarded for totalling other cars and spinning opponents through 180° or 360° turns (nudging the rear of an opponent's car

during a turn should do the trick). Last — and this is where the game truly comes into its own — is the Destruction Derby option. Up to 20 cars face off in one oval arena, and the last car still rolling is the winner. More realistically, it becomes more of a race against the clock to see how long you can survive. Upon adding to the mix of a two-player option utilizing the PlayStation's linkup cable, two players can play a game of last-



Yes, this is a real screen shot. Up to 20 cars can be displayed on screen at any one time — and often are



Every car in *Destruction Derby* is built on the same wire-frame model, with individual texture maps added to give a sense of individuality



Meet "Psycho," the most dangerous driver on the circuit. It's best to just stay well away from him

man-standing "tag" (in which all the opponent cars gun for player one's car until he/she tags player two's car) or cooperate to sandwich, bump, and decoy all the enemy cars out of the race. A terrific game option, and one guaranteed to extend the game's life expectancy.

Destruction Derby is the brainchild of Martin Edmondson, the head of UK-based development team Reflections. Having worked closely with Sony-Psychosis (the game's publishers) since initial conception, the early access to PlayStation development systems granted to the Reflections team looks set to result in the most technically impressive PlayStation game yet. Upon playing *Destruction Derby*, the two most immediately impressive technological innovations are the incorporation of real world physics into the cars' movements, and the fact that up to 20 cars can appear on screen at any one time — a feat so far achieved (on a home console) by only Yu Suzuki's AM2/Saturn conversion of *Daytona USA*. And all this achieved with no sacrifice in graphic shine or controllability.

The inclusion of real-world physics isn't merely a technical flourish, however, but a crucial element of the gameplay. Reflection's Edmondson explains: "If *Destruction Derby* wasn't programmed in the way that it is, it would be useless as a game. Without the real physics governing the way the cars behave, it would be like playing pool when the collisions are all off — completely unplayable. The whole point of the game is that you're not just recklessly driving into people (although you can do that), but you're working out ways of squeezing people off the course, weaving through crazy situations, and trying to set up multivehicle collisions which cause the minimum amount of damage to your car but the maximum amount to your opponents." And this can only be facilitated by making sure the cars behave with predictable, accurate cause-and-effect.

So just how complex is the behavioral model of the cars? "It's not as complex as the model used in, say, *NASCAR Racing*," explains Edmondson. "We don't include things like 'drafting' effects behind cars, we didn't take into account air flow, or anything like that. Sure, you can do that sort of thing on fast PCs, but you're sacrificing the speed of the game and — to be honest — most people really don't care whether the car's engine temperature rises or not."

Producer Tony Parks expounds: "All

the dynamics are as close to real as we can get without making the game unplayable. In the first few demonstration versions of the game, Reflections had incorporated completely real physics and the game was unplayable. The trouble was — and still is — that with a

"You're not just driving into people recklessly (although you can do that), but you're working out ways of squeezing people off the course, weaving through crazy situations and trying to set up multivehicle collisions"

Martin Edmondson, Reflections



In a graphic flourish borrowed from *Battle Arena Toshinden*, a giant Sony JumboTron broadcasts race footage in realtime to the crowds. The 1-up (above) and position (right) indicators help you keep track of opponents



ng alphas

joypad, you don't have a proportional accelerator, it's either full on or off. In a real car, if you floor the accelerator while taking a turn, then you're going to spin out, and with real physics incorporated, this is what was happening at every bend in the game."

"It's a compromise between realism and playability," concludes Edmondson. "And, in the end, we dealt with just two parameters; the frictional force between the cars' wheels and the road, and the cars' center of gravity as you accelerate or brake." The three cars available for sections in the game (Rookie, Amateur, and Professional) reflect three different blends of the realism/pick-up-and-go playability mix. The rookie car is very difficult to spin out and is basically glued to the track, whereas the professional car — in which the center of gravity of the car is way up front — slides easily. You can spin it around, powerslide around corners, slide into 180s, 360s, or whatever you want to do.



Each panel of each car's bodywork is constantly redrawn to display damage (top). The crossroads: not a safe place to be (right)



"After a while, players find themselves only taking out the professional car," Tony observes. "This does take a bit longer to master, but is far more rewarding and maneuverable."

In Smash-Up Racing mode, points are scored not just for finishing high in the places, but for spinning, bashing, and destroying opponents

Having experienced the teeth-clenching realism of the collisions, spins, and handling of the cars in *Destruction Derby*, it is hard to return to the simplicity of *Daytona USA* — and the uncontrollable fishtailing of *Ridge Racer* seems unforgivably sloppy in comparison. *Destruction Derby* doesn't merely cough up set-piece collision sequences, but generates them entirely on the fly. "You might see something amusing, say a 10-car collision, and then you'll never see it again, which is part of the reason for the replay feature. With replay you set cameras up to record and then playback the action from any point on the course," Edmondson notes.



While all the action remains on a horizontal level and cars can't actually flip over, bodywork does fly thick and fast (bottom)

Unless you want this kind of damage (right) happening to your car, be careful how you drive through crowded areas like this (below)



"Using real-world physics, the professional car's center of gravity is way up front. You can spin it around, powerslide around corners, slide it into 180° or 360° turns, or whatever you want to do"

Tony Parks, Psygnosis



ricochets and damage — you won't see cars flying up into the air. This is a bi-product of *Destruction Derby* having to calculate collision effects on the fly, and not simply accessing prerendered crash sequences. Second, all the cars are exactly the same shape — only the pasting of individual texture-maps distinguishes each vehicle.

But these are all considerations for the sequel to *Destruction Derby*, and don't compromise the strength of the game as it presently stands.

So how has Reflections been able to squeeze so much power out of the PlayStation? "Obviously, we're writing in C," Edmondson explains. "But you have to be careful — if you write sloppy C, then it will compile into slow code. You have to minimize what you do.

How the driving mechanics and handling of the cars will behave is now just a matter of final tweaking — the physics are all in place



Of course, the most stylish way to arrive at a race meet is in your own custom truck. It's a shame, though, that you can't enter it in the race

Even the damage resulting from collisions — indicated by status lights on an onscreen plan of your car's chassis — is meticulously calculated as a function of collision angle, speed, and the other objects/cars involved. The bodywork of each of the 20 cars is constantly redrawn to represent the damage it has sustained, and the computer keeps tabs on when the damage is to such an extent that the car must retire. Incur too much damage to the front of your car, for instance, and it's advisable to shift into reverse and complete the race backward — or at the very least, try and reduce your ramming activities to a bare minimum.

Of course, sacrifices have been made to achieve such a degree of play mechanics and graphic sophistication. The only two significant limitations to the realism of the game are, essentially, minor omissions. First, although the graphics are obviously 3D, the action actually takes place in a 2D world: there are no hills or valleys on the course, and all collisions result in ground-level



ng alphas



The graphic detail of *Destruction Derby* is awesome. Background detail remains high throughout, with little draw-in problems



Also, to keep the speed of the game up we spent a little time on the optimization of objects, object detail reduction, polygon reduction — and although you don't really see the effect when you play — objects in the distance become simpler and simpler and simpler."

Have many of PlayStation's hardware effects been utilized?

"Yes, but again you have to be careful using the hardware features of the PlayStation. For example, on the night level we have 'glowing lights' down the side of one track. Although the glow effect is actually a PS-X hardware effect, it's actually quite slow, so you'll notice that there are more lights at places of little background detail, and fewer by the grandstands or heavy scenery." In this manner, Reflections has been able to keep the speed of *Destruction Derby* almost at a constant 30 frames per second, dipping as low as 15 frames per second only at times of extreme amounts of objects on screen.

NEXT Generation is

extremely impressed with what it has seen of *Destruction Derby* so far. All of the ingredients are in place for a classic game — and quite possibly the best PlayStation title yet. The game is two-player compatible; it offers a unique gameplay hook, the implementation of this angle has been solidly accomplished — at least so far — and the game has the graphic sophistication to make it



really shine. Of course, so much of any game's success or failure depends on the crucial last few months and weeks of painful play-testing and gameplay tweaking. Expect the final review within the next couple of months.

The status indicator gives an accurate representation of the damage actually visible on your car (top). In 16th place, in trouble (above)

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"The PlayStation knows the exact damage to each car, and when it's too much to continue. After too many head-on collisions, for example, it's a good idea to shift into reverse and try to complete the race backward"

Martin Edmondson, Reflections



The start of the race is surely the best time to try and establish your presence among the leaders (top). Sparks fly up in the air (above)

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WarHawk:

The Red Mercury Missions

Format: **PlayStation**

Publisher: **Sony Imagesoft**

Developer: **SingleTrac Entertainment Technologies**

Release Date: **November**

Origin: **US**

Sony Imagesoft's previous efforts have been somewhat less than well received. Will *WarHawk* be a turning point?

Is this Sony's *Panzer Dragoon* slayer? *WarHawk* is another example of the PlayStation doing what it does best: delivering texture-mapped 3D worlds. This true 3D point-of-view shooter pits you, the pilot of the experimental fighter *WarHawk*, against the forces of the mysterious *Kreel*, your typical madman bent on world conquest.

You'll face both air-to-air and air-to-ground combat across five impressively rendered levels all completely free of tracks. One cool thing is that some of the larger enemies you face aren't just giant texture-mapped boxes — you actually fly inside them, *Descent* style. The fully explorable worlds give the game a simulator look, as does the cockpit mode (there's also a third-person, behind-the-ship perspective), but the feel of the game is totally action orientated. Game control looks good, with a easy flight-sim style movement (barrel rolls, anyone?), and a missile auto-lock that frees you from having to dive bomb every target. Static screen shots can't really capture the impressive sensation of the motion the game delivers. A two-player cooperative mode in which the second player takes up copilot and gunner duties (a la *Star Wars Arcade*) is under consideration.

Two of the more visually intense aspects of the game are the radical "swarm" missiles and the interior sequences of the *Gauntlet* level, with pyramids and beams shooting out of both the floors and walls. The canyon



Though these shots look like cut scenes, they're screen shots from the game. Notice the radar in the upper right corner

sequences, with excellent reflections off the water, are also visually stunning. And the ominous soundtrack fits the elegant scenery and compelling gameplay quite well, lending a kind of "twilight struggle" feel to the game.

With 15 minutes of FMV cut-scenes and fewer polygon glitches than were found in some of the earlier PlayStation titles, *WarHawk* definitely looks to keep the quality of PlayStation games high, and perhaps create some shine on Imagesoft's current badly tarnished reputation as well.

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What these shots can't show is the game's control — the gameplay just feels right

Urban Decay



Gunning down miscreants in dark alleys is a satisfying experience. *Urban Decay* doesn't shy away from realistic depictions of death

Format: **PC CD-ROM**

Publisher: **Psygnosis**

Developer: **A Spencer Studios**

Release date: **Summer 1996**

Origin: **UK**



This sorrowful thug is dispatched by kicking him off the gantry (top). Another attacker downed (above), this time with your trusty switchblade

Following the success of *Ecstatica*, Andrew Spencer, director at A Spencer Studios, is hard at work on its spiritual sequel, *Urban Decay*. The game uses the revolutionary

Realistic visuals, atmospheric environments, graphic violence ... *Urban Decay* is just like last year's stunning *Ecstatica*, only more so

ellipsoid engine that drove *Ecstatica* but transfers the action to a violent US ghetto at night.

"*Ecstatica* was just a testing ground for the system — we always had plans to take it further," reveals Spencer. He has now established a dedicated game development studio and taken on several extra staff — five animators and a background artist are on the project.

The benefits are already apparent. When *Urban Decay* is complete, it will include over 2,000 individual camera angles compared to *Ecstatica*'s 230. It also features SVGA graphics and an increased number of ellipsoids, which enables greater detail and realism — characters now smile and grimace, and their hands open and close when they grasp an object.

When Psygnosis presented *Urban Decay* at E3, the game's plot was still under discussion. "It's gone out of the window since then," admits Spencer. "Although there will be speech, dialogue, and plot, the emphasis will fall on the gameplay and action." *Ecstatica*'s



The clever movie-like use of camera angles in *Urban Decay* could well make *Alone in The Dark* look relatively plain



There's no doubt that violence will constitute a major part of *Urban Decay*. The game will almost certainly receive an "R" rating when it is released next summer



You scale an old water tower (top left), only to find a chopper-borne SWAT team waiting (top right). Jump off and then hang on for dear life



Ecstatica

For those not familiar with Andrew Spencer's previous game, *Ecstatica* is an unusual combination of interactivity and cinematic scenes. The player has freedom of action for the vast majority of the time, but certain events trigger set scenes. But unlike in most games, these sequences are not prerendered; instead, the geometry of the character's actions (for example, climbing a wall) is called up and then rendered in realtime. The secret of the game's success is that these intermissions are short, with the player losing control for no more than a few seconds.

mixture of action and cinematic style distinguished it from ordinary adventures, but the game was criticized for being over too quickly. Spencer intends *Urban Decay* to avoid falling into this trap.

Although Alain Maindron (the sole artist on *Ecstatica*) has now parted company with the project, his gory legacy continues. "There is blood in *Urban Decay*," acknowledges Spencer, "but it will be more underplayed. I'm not saying it won't be a violent game, because it will. Most people will play it as a violent game and enjoy that aspect of it. The appeal of *Reservoir Dogs* is interesting and in some ways comparable. In *Urban Decay* you're pressing the button to blow someone's head off. And everyone seems to like that, not just sick people. People just have pent-up aggression."

Ultimately, though, violence begets violence and the player's actions inevitably return to haunt him. "If the player acts like a complete psychopath, he'll be treated like one," says Spencer.



The number of ellipsoids used in *Urban Decay* is double *Ecstatica*'s count. The result is much greater realism

In *Urban Decay*'s dark alleys, retribution comes in the form of rival gangs, SWAT teams, and traps. However, that doesn't mean the game will turn into some kind of anti-violence morality tale.

Andrew Spencer is anxious to pursue his own path toward that elusive goal — the interactive movie. However, rather than merely present a series of pregenerated sequences, he's determined to take the best aspects of the film world and add the elements of control offered by videogames. From what **NEXT Generation** has seen, he's heading in an interesting direction.



ng alphas

Solar Eclipse

After investing mainly in 3D0 development, Crystal Dynamics is now broadening its horizons



Format: **Saturn**

Publisher: **Crystal Dynamics**

Developer: **Crystal Dynamics**

Release Date: **TBA**

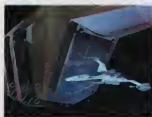
Origin: **US**

Seduced by the power and sales potential of the Japanese consoles, Crystal Dynamics has ventured outside its fairly monogamous relationship with the 3D0. The first evidence of its shifting allegiances is *Solar Eclipse*, which will be released on both the Saturn and PlayStation.

In terms of structure and gameplay, *Solar Eclipse* is best described as an enhanced version of the 3D0 blaster *Total Eclipse*. Plot-wise, though, it's more like a prequel, with the player having to destroy a renegade computer called The Grid. The action features Crystal's now familiar, highly colored, smoothly scrolling, multilevel terrain, seen in *Total Eclipse* and *Off-World Interceptor*. The Saturn's extra power should enable additional effects to be added and the frame rate to be upped.

Sandwiching the action sequences are *Shock Wave*-style cinematics, used to develop the plot. The game is hardly original, but Crystal Dynamics' slick presentation should ensure that the 40 minutes of prerendered footage is highly polished (if uninteractive).

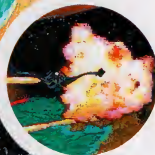
With Saturn now on the streets in the US, both Sega and Crystal Dynamics need an early, visually attractive title to persuade customers to part with their cash. Both are hoping that *Solar Eclipse* is the game for the job.



As usual, Crystal Dynamics is spending a great deal of time on the prerendered intro



Spectacular explosions (above) combine with smooth-scrolling terrain (left) to produce some impressive visuals



Action-packed scenes like this (above) reveal Crystal Dynamics' attempts to achieve the same level of excitement that characterized *Total Eclipse* and *Off-World Interceptor* on the 3D0

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Thunderhawk

Three-dimensional, first-person shooters are becoming increasingly common. Does *Thunderhawk II* have what it takes to stand out from the pack?

II

Format: **Saturn, PC
PlayStation**

Publisher: **US Gold**

Developer: **Core**

Release Date: **November**

Origin: **UK**

Thunderhawk, released in the US as *AH3-Thunderstrike*, is regarded by some to be the best Sega CD title of all time. Now Core is looking to repeat that success on at least three platforms (Saturn, PlayStation, PC) with *Thunderhawk II*. The game, a first-person perspective helicopter shooter, has been upgraded in several significant ways.

The biggest changes are the ones you'd expect from a game on a next generation system. Everything is a 256-color texture-mapped polygon — from the fractal generated 3D landscape to the plethora of enemies. And the polygon mesh nature of the terrain permits you to fly inside rural structures without pauses in gameplay.



The view isn't much different from the many other first-person shooters coming out presently, Core is betting on the gameplay



The radar screen, mapview, and damage screen keep things manageable. Though this shot doesn't do the graphics justice, they're much improved

The best part of the original was the compelling gameplay, and Core has expanded that for the new version. There are six separate missions in the game, each of which is broken down into four operations, for a total of 24 combat sorties. You've got a choice of six pilots, each with different stats (reaction, intelligence, health), or you can make a custom pilot. Also under consideration is a two-player "gunner" mode, where the second player controls the guns and the first the helicopter. The helicopter options have also been increased; you have a choice of three. There's the Scout, which is fast but with weak armor; the Supply, heavily armored but slow (good for carrying troops); and finally there's the Gunship, which has medium speed and armor.

With a wide variety of mission locations, from towns to canyons and even through underground tunnels, this looks to deliver all the excitement of the original. If Core can make *Thunderhawk II* as far above other Saturn fare as the original was above its Sega CD brethren, the company could have a major hit on its hands.



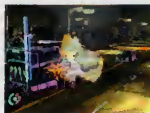
Even in these early screen shots, explosions look really cool



ng alphas

Twisted Metal

New developer Singletrac's debut is a PlayStation combat-driving game with a powerful engine under its hood



These great looking exterior views might not be ideal for play

Format: **PlayStation PC CD-ROM**

Publisher: **Sony Imagesoft**

Developer: **Singletrac**

Release Date: **Late 1995**

Origin: **US**

With a scenario and graphic environment similar to Gametek's *Doom*-inspired PC driving game *Quarantine*, *Twisted Metal* doesn't scream innovation. But as one of the first titles from Singletrac, a firm founded by former employees of graphics pioneer Evans & Sutherland, the title merits some attention.

Set in a smog-filled, crime-ridden Southern California of the future, *Twisted Metal* has five different 3D worlds and 12 enemy vehicles to take on — described by the developers as “high-tech, state-of-the-art, sinister and deadly” but looking remarkably like a checkered cab, an old ice-cream van, a truck rig, a police car, and a few other aging American icons.

There are three exterior views in addition to the basic driver's-eye



A yellow-checkered cab — one of the 12 vehicles available in *Twisted Metal* — leaps across roadworks in a run-down California of the future



Twisted Metal welcomes careful drivers, but it looks like it's more fun to aim your vehicle straight at the opposition with all guns blazing

perspective: behind the car, rear three-quarters, and overhead. There's also a head-to-head linkup option and a full range of *Doom*-esque weapons, including missile launchers, flame throwers, and machine guns. Unlike *Quarantine*, which had an exploration and adventure slant, this is a belligerent and straightforward arcade battle to the death: You progress from area to area in order to destroy enemy vehicles.

Twisted Metal looks much more like a PC title than a PlayStation one — it's far less tightly structured than pure driving games like *Ridge Racer*. However, the multiplayer option should make it one of the better US releases this year.

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There's a full range of *Doom*-esque weapons, including missile launchers, flame throwers, and machine guns



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The Darkening



The colorful and the bizarre all meet in the Sinner's Inn, a futuristic bar where you, "space dude" Clive Owen (upper right), search for your identity. *The Darkening's* universe is wholly different from *Wing Commander's*

Origin heads to the UK's Pinewood Studios to shoot a graphic adventure in the successful *Wing Commander*-style



Of the eight planets you'll discover, "Box" (above) is the Luddite of the pack, and is a major exporter of foods, including beer

As Hollywood firms sign off precarious seven-digit budgets in search of the perfect "interactive" formula, Origin Systems has already blazed its own path with the successful *Wing Commander* series.

Starring Christopher Walken (*The Deer Hunter*, *Pulp Fiction*) and John Hurt (1984, *Alien*), *The Darkening* builds on *Wing's* formula, employing the first-person perspective (using English actor Clive Owen from the *Chancer* series) to lead you through a part flight-sim, part graphic-adventure, philosophical search for your identity as alien forces plan your death.

Erin Roberts, the game's 25-year-old executive producer, (yes, he's Chris Roberts' brother) has envisioned a darkly complex, organic, eight-planet system. Multi-option gameplay enables you to take flight as a trader of various goods, to merely flying around and blasting people in your way (with the aid of wing men to fight

Format: **PC**

Publisher: **EA**

Developer: **Origin**

Release Date: **February**

Origin: **UK**

off enemies), or to play private detective using e-mail, public records, and word of mouth to take the path to your real identity, a "surprise" twist in the end.

"The technology we're using makes *Wing Commander* look like a dinosaur," said Roberts, whose \$5-million budget is the highest for a videogame (though *Wing 4* is rumored at \$7 million). The game will use SVGA graphics, accesses a more compact, and much faster engine than the one used in *Wing 3*, rendering graphics on-the-fly.

True playability of interactive movies is still questionable, and while *The Darkening* is only 15% complete and has the *Wing* series to live up to, it's got everything to make its forebears shiver in their knickers.



The Darkening features the excellent flight sim qualities of the *Wing Commander* series



Christopher Walken (top) and John Hurt (above) are two of the biggest stars to take the "interactive" plunge

Rebel Assault II

Can awesome graphics and one of the most valuable licenses on the planet give *Rebel Assault II* the success of its predecessor, despite mundane gameplay?



Blue screen effects — pioneered in *Star Wars* — are used throughout the entire game

Format: **PC CD-ROM**
 Publisher: **LucasArts**
 Developer: **LucasArts**
 Release Date: **November**
 Origin: **US**

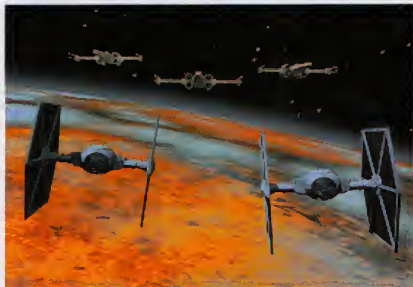
There's a new installment of *Rebel Assault* coming. And because this is the first time anyone besides George Lucas has

filmed live actors in the *Star Wars* universe, *Star Wars* fans may be more interested in the cut scenes than the gameplay. Unlike in *Star Wars*, where actors lined up to get filmed in an X-Wing cockpit, the action in *Rebel Assault II* was shot in front of a blue screen, with computer-generated backdrops and effects added later. Pretty standard multimedia stuff, but if George Lucas gives his stamp of approval, you can be sure these are cut scenes you'll want to watch.

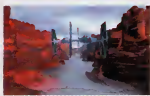
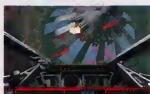
Set in the Galaxy's Bermuda Triangle, the Dreighton Nebula, *Rebel Assault II*'s plot focuses on two characters from the first game, Rookie One and Ru Muleen, who discover that the Nebula's mysterious properties may be the result of Imperial treachery.

Gameplay looks to follow that of LucasArts' first effort closely, with an enhanced game engine providing lots of track flying, either in the cockpit or behind the ship, as well as some ground-based laser blasting. You know the drill.

LucasArts is following the time-honored sequel formula with *Rebel Assault II* — you find that one thing that works and give people more of it. And it looks like the enhanced game engine, visually enticing graphics, and compelling storyline will enable the company to pull it off.



Richard Green's artistic team has delivered another visually stunning product with *Rebel Assault II*



Seem familiar? Gameplay follows *Rebel Assault*'s successful formula

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Yoshi's Island: Super Mario World 2



"By spending almost four years in the creation of this game, we have included a lot of magic tricks. The more you play the game, the more surprises it will give you. As far as the quantity and quality of game ideas are concerned, *Yoshi's Island* is second to none"

— Shigeru Miyamoto, NOJ

Format:	Super NES
Publisher:	Nintendo
Developer:	Nintendo
Release Date:	October 2, '95
Origin:	Japan

It's been a long time in coming, but the sequel to the best *Mario* game ever released has finally made its way to the Super Nintendo.

While the game doesn't have the same addictive feel as its predecessor, *Yoshi's Island* does contain a score of new features that should keep fanatics happy for hours on end.

In a surprise twist on the original title, you take on the role of Yoshi this time, as he attempts to escort baby Marios through a familiar world of weak-necked monsters and twisting pipes. If Yoshi takes a hit from an enemy, the fledgling plumber on his back will begin to float away, screaming for help in a pitiful wail that will touch even the hardest hearts. Players must recapture the wayward tots within three or four seconds or watch helplessly as a group of evil wizards whisks Mario away for unknown evil purposes (early rumors hint at Captain Lou Albano and a disco barbecue).

To help keep all of this from happening, Yoshi's got some unusually impressive new tricks up his spotted sleeve. When Yoshi eats certain enemies, he is able to lay up to six eggs that follow him duckling-style through the stage. By pressing a button, players are given a crosshair that moves around the screen, targeting different enemies. Pushing this button again fires one of your stockpile of eggs, obliterating anything in its way. Even without eggs, Yoshi can attack in the time honored method of jumping on the heads of

Miyamoto returns to bring Super NES owners what may be one of the most eagerly anticipated sequels of all time



Yoshi's egg attacks are the best way to knock off out-of-reach enemies

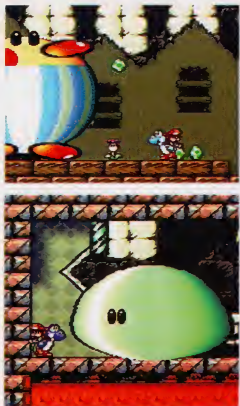
enemies (a tactic that still has yet to serve me in a barfight). Bosses are big and menacing, in many ways similar in challenge to *Mario World's* overlords, and requires players to master more and more advanced uses of Yoshi's various skills as well. Addictive bonus levels keep the game from getting too repetitive, and, in fact, are often as much fun to play as the game itself. As usual, control is fluid and smooth, gracefully achieving the easy-of-use factor that's made the series so popular, without ever becoming uninteresting.

Shigeru Miyamoto, (NG 2) the creator of *Mario*, lent his rather precious talent to the title by acting as producer, heading up the creative end of the process as well as piecing together the work done by the rest of Nintendo of

Once Yoshi has laid his dangerous eggs, they follow along in duckling fashion until thrown



Many scenes are reminiscent of earlier Mario titles. Man, those bad guys sure can build castles can't they?



The intimidating yet cute look of most of the game's enemies show a strong Shigeru Miyamoto influence



Japan's team. In another more recent interview with **NEXT Generation**, he explained this *Yoshi's Island* appeal.

"By spending almost four years in the creation of this game, we have included a lot of magic tricks. The more you play the game, the more surprises it will give you. Just as an example, there are more than 130 different enemy characters in this

game... As far as the quantity and quality of game ideas are concerned, *Yoshi's Island* is second to none."

The technology of the cart is rather curious in and of itself. This is the first Nintendo title to sport the Super FX2 chip designed by Argonaut (which was originally intended to be the Super FX chip, but was dropped by Nintendo at the last stages of development). Game graphics are very simple, a stark change from the brilliant visual effects of *Donkey Kong Country* and *Killer Instinct*, but the feeling of nostalgia that accompanies your return to *Mario World* makes the two-dimensional cartoon representations seem intuitively right. Both music and sound are another step sideways,

delivering all of the Looney Toon-esque wackiness of the original *Mario* series, without ever really stretching into especially new or creative areas.

Due in October, *Yoshi's Island* looks like it could be everything that *Super Mario World* was to gamers, but not much more. With Nintendo's Ultra 64 release headed this way in April '96, we sincerely hope that Nintendo makes the effort into delivering a *Mario* title that features a little more flash and a lot more originality than has been put into this.

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These collapsing walls are one of the few obvious examples of FX2 chip technology



If you take a hit, you'll only have seconds to recover baby Mario before he is permanently put to bed. Notice the peaceful yet surrealistic scenery



Many of the bonus stages are as much fun to play as the game itself

Let the games begin

The Genesis led the 16-bit race due, in great part, to its superior sports games, but can Sega continue to dominate this genre? Or will Sony steal its home-field advantage?

NEXT Generation takes a look at the 32-bit sports arena

The increased processing power and CD-format of the new 32-bit machines brings potential for more sophisticated artificial intelligence

More than 30% of all software titles sold for the 16-bit market were sports games. Demographically speaking, sports

gamers tend to be older than the mainstream; these are sports fans who feel far more at home leading the Madden All-Star team to a *John Madden Football* superbowl appearance than playing, say, a cute platform game. Logic would suggest that as the next generation of 32-bit consoles remains more expensive than its 16-bit predecessors, it will attract an older user-base. And that means it's an audience demanding yet more sports games, but bigger, better, and smarter games than ever before.

The increased processing power and CD-format of the new 32-bit machines brings potential for more sophisticated artificial intelligence (AI), far more realistic visuals (that's not just number 32 — that's actually a texture-mapped recreation of O.J. Simpson comin' at ya), and a wealth of statistics, authentic team shirts, finely-detailed re-creations of famous stadiums and arenas, plus, of course, all the TV-commentary style FMV trimmings that we've come to know and skip quickly past.

So who's working on what?

Electronic Arts dominates the 16-bit sports game business, responsible for more than 50% of all 16-bit sports software. It should come as no surprise then that several companies have formed sports divisions taking aim at EA's marketshare. Crystal Dynamics, Interplay, Psygnosis, Ocean, Konami, and Data East are all placing their respective bets on the ever-growing sports market. Not to mention the continuing and growing attacks by Sony

Imagesoft, Sega Sports, Accolade, and Acclaim. What all this fierce competition hopefully means to the sports gamer is raised quality in graphics and gameplay, and a greater variety in titles.

Chip Lang, director of marketing at EA Sports, points to the company's own *FIFA Soccer* on the 3DO as the tip of the iceberg. "It's just an example of the kind of environment you can expect in the next generation of sports games," he enthusiastically promises.



This is how far we've come. A screen shot from *Madden '96* for Super NES (left) compared to a screen from *Madden '96* for PlayStation (top). This is only the first PS-X football title, expect more and better to come



Sega's *World Series Baseball* features a variety of camera angles placing you down at field level, up in the stands, or even has you follow the ball. Any way you look at it, the game looks hot



Crystal Dynamics' *3D Baseball* looks great, but how its "looks" translate to gameplay is the trick



Interplay's new VR Sports division is pushing *VR Baseball '95* out the door first, and if the high-end workstation graphics hold up on the PlayStation and Saturn, it'll be a treat

Sega Sports' Chris Cutliss believes that "The TruVideo [FMV] capabilities of the new machines are a big part of the future of sports games." He refers to the highly-successful practice of dressing up sports games as TV shows, a trend that seems destined to continue.

What follows is a brief round-up of who's working on what versions of what sports. So grab that beer, open those pretzels, and pull up the couch...

Baseball. Previously, the baseball game was restricted to one perspective, either the high overhead view or the tight pitcher/batter view. The 32-bit systems are capable of handling a plethora of "camera" options, often panning on the fly to get up close and personal. Sega of America's attractive conversion of the Japanese Saturn game *Greatest Nine* is *World Series Baseball* (see review on page 89), which uses four different camera angles pitched around its texture-mapped field.

Expect all player movement to be motion-captured from now on. Crystal Dynamics has developed a new method of motion capturing that enables the player to control an ultra-realistic character. The first implementation of this technique is *3D Baseball* for both the Saturn and PlayStation. Meanwhile, Interplay's new VR Sports division and Konami are both heading in a similar direction with their baseball games, also available for Saturn and PlayStation.

What advances will be made in terms of gameplay, however, remain unclear. Baseball is a notoriously difficult videogame to "get right," or in other words, to perfect. And so far no one is promising the much-needed revolution in batting/pitching mechanics.



The early shots of *NHL '96* look incredible, and their track record with gameplay makes this one hotly anticipated title

Other baseball titles planned are Acclaim's *Frank Thomas Big Hurt Baseball* (all platforms), EA's *Triple Play* series (all platforms), and Data East has signed on Blue Sky Software (makers of the *World Series* games for Genesis) to make several sports games in '96. Simulation fans will be glad to know that players' licenses, stats, improved AI, and all the usual options are planned for each game.

Hockey. EA's *NHL* series is arguably the most exact sports simulation ever, but the days of fat little skaters and a strict overhead view are over. Sega's *All-Star Hockey* (Saturn) gives you the ability to switch your view of the action on the fly, zooming closer or panning out for a wider look of the rink as the game continues. EA Sports' team is hard at work on *NHL '96* (Saturn, PlayStation) which promises to feature the same excellent and reliable gameplay, along with a much improved look. The gritty realism of the game (from charging defensemen to easily injuring veterans), is a feature that's going to be amplified.

Sony Imagesoft's *NHL Face Off* (PlayStation) will feature players' numbers and names on the backs of their jerseys, along with four different playing perspectives. Again, all three titles will benefit from real professional players, options, and — obviously — enhanced graphics.

Football. By just taking a cursory look at 3D0's *Madden Football*, you get a notion of 32-bit videogame



NHL All-Star Hockey for the Saturn has all the views, but can the gameplay ever catch up with EA's *NHL* efforts



Forget all about ESPN *National Hockey Night* and get ready for *NHL Face Off* for the Sony PlayStation



This player illustrates the potential of uniform texture-maps flowed over motion-captured character animation

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NFL Gameday for the PlayStation has the first actual game screens for a 32-bit football game



NBA Action for the Saturn is using a similar perspective, but all we've seen thus far are pretty SGI images



An on-the-court perspective puts the player right on the court in **Crystal Dynamics' Basketball '95 (Slam 'N' Jam for 3D0)**



Sports newcomer Psygnosis puts in its effort of capturing its home country's sport (UK) with **Pro Sport Soccer**

football's potential. EA's next *Madden* game (PlayStation, Saturn) will feature motion-captured generic players, then artistically touched up to look like their real world counterparts. The zooming camera permits downfield passing and close-in juking, while the superior processing speed enables a much more

intelligent computer opponent to take you out even faster than before. Sony Imagesoft's *NFL Game Day* (PlayStation) features different-sized players (linemen are big, punters are small), three playing perspectives, and an entirely new updated playbook featuring all the newest NFL plays. Sega Sports' *Prime Time Football* (Saturn) is still in such early development that Sega staff members couldn't show *NEXT Generation* reporters any material at this stage. Expect the same on-the-fly camera zooming feature as Sega's other sports titles — and a fierce battle between it and EA's 32-bit *Madden* for position as first team starter.

Basketball. The basketball genre changed dramatically and forever this spring with Crystal Dynamics' *Slam 'N' Jam '95* for the 3D0. The on-court view, scaling, and huge, detailed players drag gamers into the court like never before — it truly is an outstanding testament to both 3D0's power and Crystal's rapidly increasing expertise. Crystal is creating an enhanced PlayStation and

Saturn version that promise to look even more attractive and will feature real NBA players.

Taking a similar approach is Sega Sports with *NBA Action* (Saturn) — replete with its own on-court close-up view. Both EA (PlayStation/Saturn) and Sony Imagesoft (PlayStation) are also planning hoops titles, but both companies are reluctant to release too many details at this early stage.

Soccer. One year ago, *FIFA* for 3D0 set the gaming world on its ears when it revolutionized what was thought possible in both the soccer game genre and on the 3D0. Now an updated, improved version is planned for PlayStation and Saturn.

Sega Sports' *Worldwide Soccer* is already out, featuring fast arcade action

with on-the-fly camera changes. With this title you can (somewhat confusingly) control both camera and players simultaneously: Zoom the camera out to spot an open wing receive a long pass, then move in tight to kick for the corner of the net — at least in theory.

Additionally, the amazing Sega arcade game *Virtua Striker* shows exactly the kind of experience developers are shooting for, and it will be converting it to the Saturn in 1996. On the Sony front, Psygnosis has captured the beautiful look with texture-mapped polygon players in its game *PowerSports Soccer* (PlayStation), but as with any sport, the real test is the gameplay, and how best the free-flowing and technique-based sport converts to a home videogame.

Golf. The golf sim has always been a staple of the PC gaming industry. Now, with the expectation of older players joining the console market, its appeal is sure to spread. Sega's *Pebble Beach Golf Links* (Saturn) features sharp graphics and FMV to bring the treacherous Bayside course to the home. EA Sports' easy-to-play *PGA 96* (PlayStation, Saturn) pits you against other pro's (whose swings are filmed on a blue screen and then incorporated) on a well-drawn course, and epitomizes what EA Sports hopes its popular series can bring home.

It's hard to say how gameplay can improve, other than from more sophisticated course terrain and more complex surface textures.

In conclusion, the Genesis was the superior sports machine in the 16-bit market, largely due to EA's and Sega's own output. But what system will achieve sports fans' most favored status in the 32-bit age?

Sega can confidently be expected to defend its highly profitable niche from both rival systems (PlayStation and 3D0) and other Saturn developers. Meanwhile, Sony Imagesoft has turned over a new leaf by ridding itself of the ESPN license and claims to be now working on solid gameplay instead of padding out gratuitous licenses.

But, as EA's Chip Lang concludes, "No matter which system you own, today's sports fans are going to get some great sports games."

We say bring 'em on.



Sega Saturn's Virtua Striker is already out and enables you to change views on the fly



Combining smooth graphics and Full Motion Video are what **Sega's Pebble Beach Golf Links** a hit



EA's **PGA '96**, possibly the greatest golf series ever made, is getting a 32-bit facelift that could leave all its competitors in the clubhouse

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Virtua Cop



From close-up, the quality of detail in both *Virtua Cop*'s backgrounds and characters is impressive. Sega is set to release a Saturn lightgun for use with *Virtua Cop* in time for the game's launch

Sega's most recent *Virtua* title gave the light-gun genre the 3D polygon treatment but left the gameplay firmly in the mode of

Lethal Enforcers and *Mad Dog McCree*. The two-gun arcade machine will retain the high graphic standards of the previous *Virtua* games, and the Saturn conversion in development looks as faithful as that of *Virtua Fighter*.

Although Saturn *Virtua Cop* is only 20% complete, almost all the polygon data models for the levels and the first-level characters are finished. In these shots, 70 to 80% of the textures have been applied to characters' bodies and faces and, like *Virtua Fighter* and *Daytona USA*, logos and other details are mapped onto the backgrounds.

The first level of the version shown here would be fully playable were it not for the fact that it's missing its boss. The main problem facing developer AM2 right now is speed — the game suffers from slowdown at several points. However, AM2 promises that the Saturn conversion will feature the same number of enemies as the coin-op.

What AM2 and Sega can't promise is anything more substantial than a few

AM2 converts its gun-toting coin-op for the Saturn, but will the simplistic gameplay cut it in the home market?

Format: **Saturn**

Publisher: **Sega**

Developer: **Sega/AM2**

Release Date: **January**

Origin: **Japan**



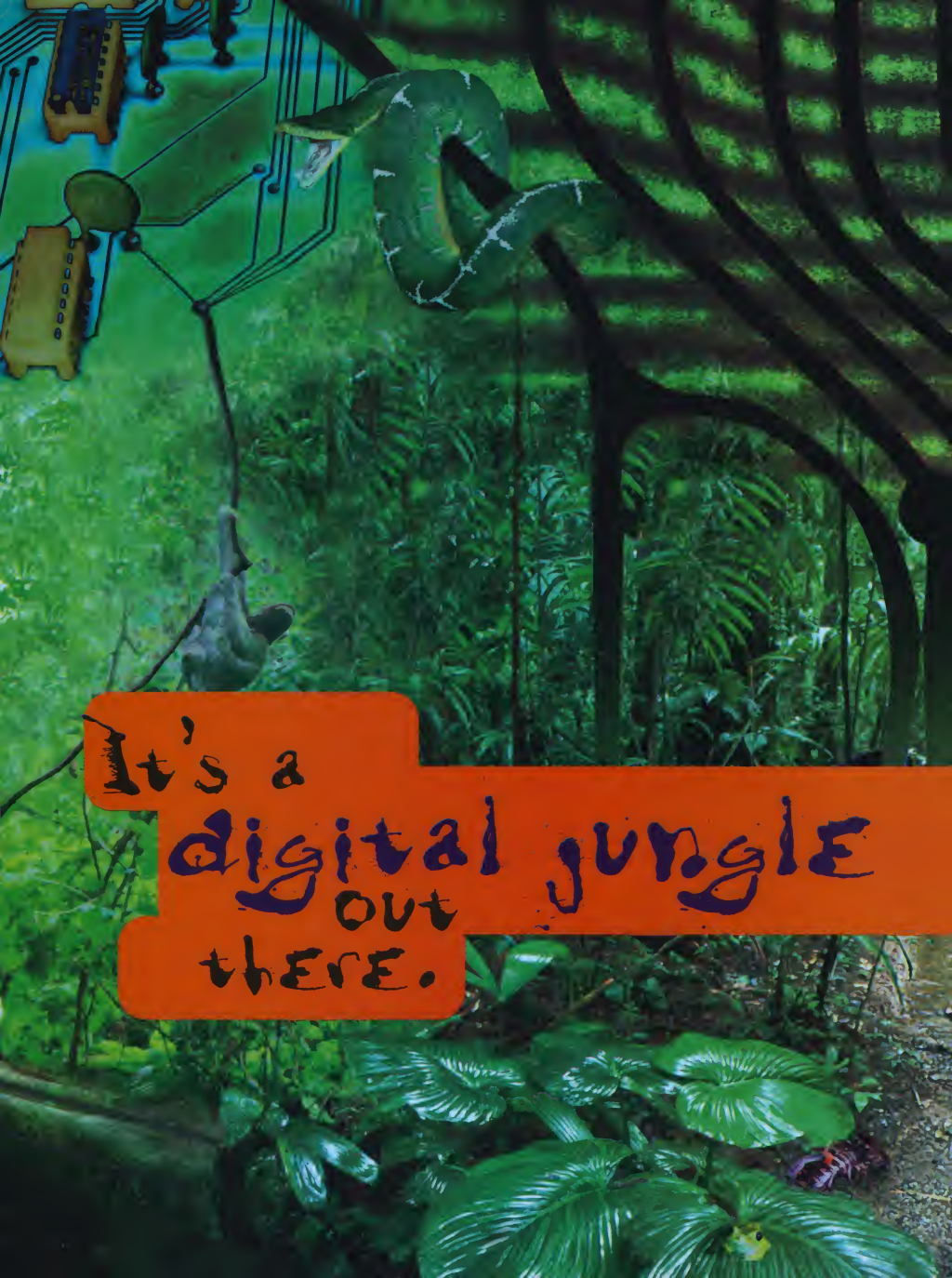
Most of level one in *Virtua Cop* seems to be populated by black-suited extras from the cast of the cult film *Reservoir Dogs*



Virtua Cop enables easy differentiation from the good (in white), the bad, and the ugly

hours' target practice. A lightgun is planned for release with the game, but the add-on only raises the question about *Virtua Cop*'s money value. Even the best light-gun coin-op/home console translates badly, and *Virtua Cop* is unlikely to draw the crowds Sega needs to attract to the Saturn.

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88	PlayStation
88	Saturn
89	3DO
90	Jaguar
93	Virtual Boy
94	Neo-Geo
94	PC
99	Macintosh
100	Sega CD
102	Genesis
102	Super NES
107	Arcade
108	Sega 32X

Each month, **NEXT Generation's** team of diehard gamers reviews and rates the month's new game releases. Our opinion as to each game's merits is expounded in the text, but as a rough guide to a game's worth (or lack of it) then refer to the following ratings.

★★★★★ Revolutionary
Brilliantly conceived and flawlessly executed; a new high-water mark.

★★★★ Excellent
A high-quality and inventive new game. Either a step forward for an existing genre, or a successful attempt at creating a new one.

★★★ Good
A solid and competitive example of an established game style.

★★ Average
Perhaps competent; certainly uninspired.

★ Bad
Crucially flawed in design or application.

PlayStation

CyberSled

Publisher: Namco
Developer: Namco

While *CyberSled* enjoyed its own measure of success in the arcades, it is doubtful that the home version will be able to create the same kind of excitement. It's not that the translation to the PlayStation suffered any sort of significant damage, but without the double-screen supplied in the arcade for two-player action, there is very little left here to enjoy.

Well, yes, there is a split-screen, two-player mode. But the amount of screen allotted to each player generally means a mind-numbing game of squinting and neck-craining just to keep up with what's going on in the match.

This title probably didn't need to come home at all, but if you're an absolute die-hard fan of the original coin-op, the one-player mode is a close match.

Rating: ★★



The split-screen view is a tragic, but unavoidable flaw of the home version of *CyberSled*.

Saturn

Astal

Publisher: Sega (Japan)
Developer: InVision

This is the game that answers the question "Is it worthwhile to make traditional side-scrolling action games on the new 32-bit systems?" *Astal* takes a deep stab at it, but unfortunately the game answers the question with a reluctant "No."



The deep, vivid colors of *Astal* are the first thing you'll notice about this game. Here, the small but powerful *Astal* stares down the Crystalline trio.

It's not that *Astal* doesn't make use of the new color palette or even the vast scaling abilities of the Saturn, it does, but when you come right down to it, there's not really anything here that couldn't be done nearly as well with a 16-bit machine.

Astal is, in the end, a fine, side-scrolling action game, and if you already own a Saturn and you love side-scrolling action games, then this is a good one to pursue, but this game would not exactly make a good argument for buying a 32-bit machine.

Rating: ★★

Battle Monsters

Publisher: Naxat Soft (Japan)
Developer: Naxat Soft

With many of the latest two-dimensional fighting games showing off their imaginative development in the form of more and more gruesome moves, it's nice to see a game take a slightly different approach. *Battle Monsters* is more interested in creating gruesome characters with which to fight. For example, you will not find in any other fighting game a character that beats his opponents to death with his own dismembered head.

Beyond the creative abnormalities, though, there is very little here to get excited about. The animation is choppy, and the action itself is predictable and lackluster. The overall look of the game isn't bad, but the

characters are never quite enveloped within the background. Instead, what's left is a nice background with characters which seem to be cut and pasted on to the television screen.

Rating: ★★



Battle Monsters' overall look is good but far from stunning.

Bug!

Publisher: Sega
Developer: Sega

If there was one gaming genre that simply had to grow to survive in the arena of next generation consoles, it was definitely the platform game. Sega takes a noteworthy crack at breathing some 32-bit life into this well-worn formula with its first platformer, *Bug!*. The jump to 32-bit brought with it a whole new dimension, literally. *Bug!* brings with it that ever-elusive third dimension, opening a whole new world of running and jumping opportunities.

Although the concept is intriguing, the action and graphics

rating 3DO

Saturn



The choice of views in *Greatest Nine* is a great way to customize your game. The colorful commentary also has a magical quality

SWINGING

Greatest Nine

Publisher: Sega (Japan)
Developer: InVizion

For many, the decision to buy a next generation machine will depend on the quality of the new console's sports libraries. This being the case, the Saturn will definitely be turning some heads and opening some wallets with this. *Greatest Nine* is currently being developed for the American market and will, at release, have full Major League Baseball licensing.

What makes this game worthy of being called a next generation sports title is not any particular innovative feature that makes you forget that you're playing an age-old game, but rather the impressive execution of all the features you've come to love in great baseball games of the past. This is not to say that there are no new features here, because there are certainly no other games with a choice in camera angle like *Greatest Nine*, or the excellent colorful commentary, but these elements only add extra satisfaction to what was already a great-looking and great-playing baseball game.

In the end, minus a few malfunctioning control features that Sega US promises to fix, *Greatest Nine* is an excellent sports title for the Saturn and an extremely encouraging sign of what's to come.

Rating: ★★★★★

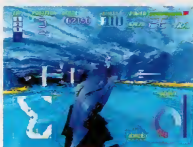
The overall control of the defensive team makes for exciting possibilities



The characters in *Bug!* are imaginative but predictable

solid, and the characters cute and amusing, this title is mostly a direct translation of 2D gaming into a 3D format. All the old tricks are represented here, like hopping on enemies' heads, finding hidden power-ups, and landing on floating platforms, giving this one more of a fun novelty feel than anything else. For the platforming fanatic, this is a must-have, and for others it's still fun, but not genius.

Rating: ★★



Gran Chaser's rich backgrounds and unconventional tracks make for intense racing action

Gran Chaser

Publisher: Sega (Japan)
Developer: Nextech

Set in a futuristic galaxy, *Gran Chaser* represents the next logical step in racing action for the Saturn. This hovercraft racer treats the gamer to a total of 11 tracks representing an elemental host of worlds that feature ice, water, and fire.

Considering the draw-in problems of *Daytona USA*, the only other racing game for the Saturn, *Gran Chaser* does well with the graphics, though there is still a trace of late draw-in lingering around some of the corners. The action is fast and the handling is a sophisticated system of degrees and timing.

There are some problems with the width of each track — which is a little unforgiving to the novice — and the tracks are varied more in appearance than in the way they actually feel, but all in all, *Gran Chaser* is good fun, if not all together great.

Rating: ★★★

3DO

Strahl

Publisher: Panasonic
Developer: Media Entertainment

Strahl is a title that's placed squarely in the *Dragon's Lair* tradition, this time using anime-styled characters and action. We wish there was a better way to



Strahl is another lousy "watch the movie, push a button" game

say this, but basically, it sucks.

The correct direction or button to push is always flashed on the screen, and none of the game's eight (count 'em, eight) sequences pose any challenge at all — you can literally beat this game in 15 minutes. Depending on the order you choose to play the sequences in, and how many times you die trying, there are 48 ending scenes — and the thought of playing this enough times to see them all ranks right up there with having your eyelids stapled open and being forced to watch "Gerald" reruns. Thanks, but no. **Rating:** ★

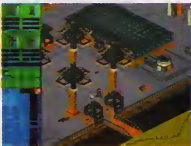
Syndicate

Publisher: Electronic Arts
Developer: Bullfrog

This is starting to get a little old. *Syndicate* is a great game, but we've reviewed no less than three different versions at various times this year, and there's no end in sight.

For the record, this is an excellent translation of the original PC version, thanks to the massive storage capacity of the CD and the 3DO's 24-bit color palette. Control leaves a little to be desired, but that's just the standard 3DO control pad letting us down again. Of all the versions we've looked at, this is a close second behind the PC, noticeably better than the Jaguar, and miles ahead of the Genesis and Sega CD versions. Otherwise, it's exactly the same.

Rating: ★★★★★



3DO's *Syndicate* is better looking and more complete than Sega CD or Genesis versions

Zhadnost: The People's Party

Publisher: Studio 3DO
Developer: Studio 3DO

This semi-sequel to the early 3DO hit game show *Twisted* shares most (if not all) of that game's strengths and weaknesses.

It's a "wacky" game show using FMV contestants and cut scenes, built around a series of simple contests. Although the video quality is excellent, and a lot of it is outright hilarious — the show is being "broadcast" from a former Eastern Bloc nation,

rating jaguar

3DO

ROUND 2

Ballz

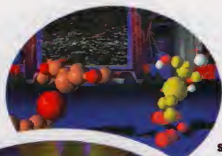
Publisher: Panasonic
Developer: PF Magic

Ballz was released for Genesis more than a year ago, and at the time, it was much better in concept than an in actual game form. By using, well, balls, which look the same no matter what angle you see them from, and a couple of them with rudimentary scaling routines, it was possible to fake a 3D fighting game in a 2D environment. The trouble was that the Genesis color palette was so limited, you couldn't tell one ball from the next, and while some of the animation was quite clever, it looked awful and gameplay was confusing.

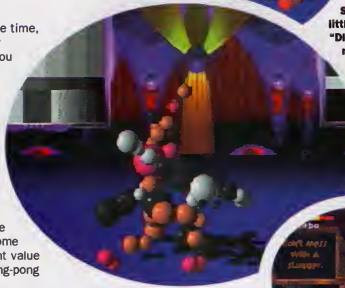
Now we have the 3DO version, which affords the game a vastly improved palette to work with, an actual 3D environment to move in, and a "Director's Cut" of moves — attacks deemed too offensive for release on the Genesis — and it's a vast improvement. Ballz looks better, and controls surprisingly well. However, at a time when true 3D brawlers like *Battle Arena Toshinden* are becoming almost as common on home systems as their 2D brethren, the usefulness and entertainment value of a game in which all the fighters look like refugees from a ping-pong tournament has to be questioned.

If you accept its looks, it plays fine, but this is as much yesterday's technology as any sprite-based fighter attempting to get away with digitized characters. It's almost too bad, but it's just a game out of time.

Rating: **



So many balls, so little time, and the "Director's Cut" puts more on display than ever (top). Ballz has a novel look and feel, and it deserves to be better and more timely than it is (above)



But does anybody really like watching a bunch of pool-table castoffs hitting each other?



overreager for the fruits of newly acquired capitalism — it suffers from the same limitation all FMV-based games share — namely, that once you've played a half-dozen times, you've seen it all, over and over and over again.

It makes a great party game, but wears thin too quickly.

Rating: ***



The jokes and designs of *Zhadnost* are a hoot the first time, less so the 10th or 20th



The multiple explosions in Atari's newest shooter, *Blue Lightning*, are particularly satisfying

tech warplane (and on a track, too), piloting a variety of challenging air-to-air and air-to-ground combat missions.

What elevates *Blue Lightning* over mediocrity is the variety of planes you can fly — seven — each of which has markedly different characteristics. If you crash, you lose access to that plane until you complete all the assignments in the current mission. The world you fly in is simulated 3D, which occasionally gives you the feeling you're flying through scaling cardboard cut-outs, but the action is fast enough and the scrolling is smooth enough to keep this from being a serious problem.

You might not expect much from a game that was originally released over five years ago, but *Blue Lightning* was a great game when it was released for the Lynx,

and it's still a good one now. It isn't worth buying the Jag CD to get this, but if you already have one, this won't disappoint you.

Rating: ***

FlipOut!

Publisher: Atari
Developer: Gorilla Systems

FlipOut! is an enjoyable and original puzzler on a system sadly devoid of them. Using a three-by-three grid filled with colored tiles, and one extra, "King Fluffy" flips

all the tiles in the air and you must keep flipping them until they're in their original order, keeping at least one tile in the air at all times.

FlipOut! is more fun than it sounds — and this is no *Tetris* clone, it requires a novel mode of thinking to succeed. Progressing through 50 levels, you contend with more tiles, new things to flip, advanced grid layouts and interference from the little spectators from Planet Phromaj.

Rating: ***



It's only proper that Gorilla Systems' puzzler *FlipOut!* — available for Atari's Jaguar — is whimsical in a purely American manner

Jaguar

Blue Lightning CD

Publisher: Atari
Developer: Epyx/Atari

Basically, *Blue Lightning* is a lot like Sega's old *After Burner* — it's a forward-scrolling shooter, with you in the cockpit of a high-

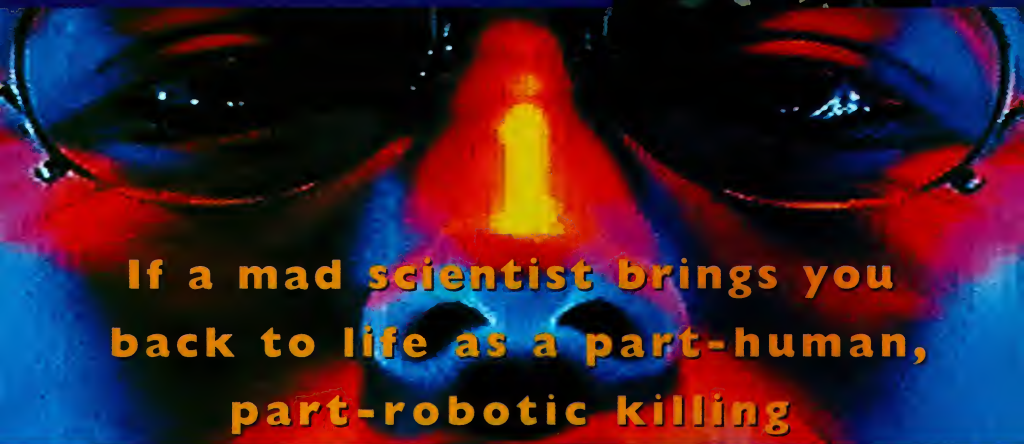


You're the ultimate killing machine, part man and part robot. So what comes out when you tinkle? Never mind that. Get to the lab and exact your revenge on that twisted scientist.

Enjoy the smell of burnt metal? Good. You'll need to blast hordes of evil motoids like this one in order to survive.



He may look like a waste of good aluminum, but this android will come in handy when things get hairy. He'll send you useful bits of information through your communications circuit that will help you in your mission. (In other words, don't pump him full of lead.)



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part-robotic killing
machine, do you blow him
away or call him Daddy?**



Here's a relationship that's even too screwed up for one of those cheesy talk shows. Introducing *Iron Angel of the Apocalypse™*. A mad scientist has created you, the Iron Angel, from flesh, bone and metal. But he didn't program you to mow his

Cool game, huh? Wait until you see Iron Angel of the Apocalypse: The Return.

lawn and serve drinks at his parties. He wants you to rid the world of the human race. Luckily, you still have enough brain tissue to realize that the world could do without this lunatic. With the help

He may have created you, but there will be no father-of-the-year awards for this wacko.



of a lovely assortment of big-ass guns, your mission is to blast your way to the scientist's lab on the top floor. If you make it, you can give Pops a Father's Day gift he'll never forget.

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Virtual Boy

Mario's Dream Tennis

Publisher: Nintendo
Developer: Nintendo

Each of the first five titles being released by Nintendo for the Virtual Boy is an attempt to fire new life into an old 8-bit title by adding a few three-dimensional effects. And strangely enough, with *Mario's Dream Tennis*, it works quite well.

In standard tournament rules, Mario takes on competitors Donkey Kong, Toad, and other members of the classic pipe mythology in an attempt to smash, lob, and backhand his way to final victory. Graphics and play are almost identical to Nintendo's original *Tennis*, and any gamer who's looking for something new is almost assured to be disappointed, but if you're looking for an additive title to play on your Virtual Boy, this is one of the best choices you can make.

Rating: ★★



Mario series characters team up with solid 3D effects to create a great remake of an old classic

Space Pinball

Publisher: Nintendo
Developer: Nintendo

Nintendo's pack-in game was an obvious choice. *Space Pinball* gives Virtual Boy owners a title they can take out of the box and play without actually experiencing any real fun.

The basic problem here is that there just isn't that much to do on any of the tables. After mastering a couple of different shots, most players should have no problem racking up ridiculous scores by shooting the scant targets over and over again. Graphics are passable, but the three dimensional look that's the Virtual Boy's stock in trade really doesn't affect play at all.

In the final analysis, it doesn't really matter how good this game is since you're going to get it anyway, but if you were expecting to squeeze a few months of play out of your machine before investing in a new title, you might want to think again.

Rating: ★

Red Alarm

Publisher: Nintendo
Developer: Nintendo

Red Alarm should be a fantastic game. Graphically, its smooth wire frame look is about the best the Virtual Boy can aspire to, control



Red Alarm's wire-frame graphics have a certain '80s charm, but get confusing very quickly

and movement are intuitive if not responsive, and even the true 3D fight ideas is well designed. The problem is, in actual practice, none of it really works. The wire frame walls become impossible to gauge at close range, the tight environment doesn't ever let the player get the free feel that open flight style could deliver.

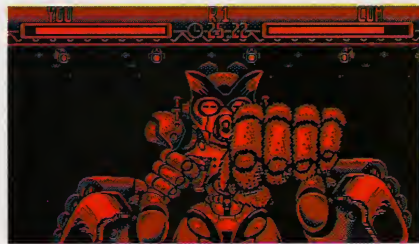
Red Alarm was intended to be the Virtual Boy's answer to *StarFox*, but the game seems to show that, at least for the time being, Nintendo should stick with the speed and performance of bit-mapped graphics.

Rating: ★

TeleRoboxer

Publisher: Nintendo
Developer: Nintendo

Another 8-bit return, *TeleRoboxer* is for all practical purposes a high-tech remake of *Mike Tyson's Punch Out!* for the NES. In each round you and your remote-controlled robot (notice the careful skirting of the violence issue) are pitted against a competitor who's loaded with plenty of nasty tricks up its metal



TeleRoboxer's enemies are crisp, but their attacks hardly affect gameplay

Virtual Boy

TURTLE CARNAGE

Mario Smash

Publisher: Nintendo
Developer: Nintendo

Still suffering from childhood memories of a savage tortoise mauling, Mario sets out in another of his psychotic episodes, once again seeking to render the world's turtles extinct.

Although it's basically the original *Mario Bros.* in a 3D form, the game is actually fun, using the Virtual Boy's additional axis to full advantage without detracting from gameplay. Each round, players tear around the familiar pipe structure, kicking over turtles (an infinite number to abuse), and throwing the shells at mutant creatures on the other side of the course. In the bonus rounds Mario tries to grab coins as they fly toward him in a alley-like arena. Sound and graphics are one-dimensional, but for the most part you should have expected that when you purchased the machine. In the end, *Mario Smash* doesn't deliver the next generation in gaming, it's not addictive, exciting, or even nice looking, but it's a darn good distraction in an interesting new format. As far as the turtles go... Mario, it's time to stop this madness!

Can't we all just get along?

Rating: ★★★



More than just a gimmick in *Mario Smash*, players must use the 3D world to their advantage



Like in the original *Mario Bros.*, stunned enemies must be disposed of quickly

sleeves. Unlike *Mario's Dream Tennis*, the three dimensional effects don't add that much, and after a few plays it becomes apparent that what you've got in your hands is a monochrome version of an old game.

On the upside, *TeleRoboxer* looks better than any other Virtual Boy title currently available, controls are easy to learn and prove effective, and opponents are slightly more difficult to figure out than their NES cousins.

Once again, if you want something new, seek elsewhere, but if you just want a solid game for your new system, *TeleRoboxer* isn't a bad choice.

Rating: ★★★

rating neo-geo pc

Neo-Geo

Rally Chase CD

Publisher: SNK
Developer: ADK

Rally Chase, on the new Neo-Geo CD system, is an overhead racing game played out on a global course. Regrettably, the many courses are largely the same and the action is less than intense. In the day and age of the 3D racer, it's difficult to accept this archaic point of view, regardless of execution — which is not bad, but isn't exactly notable either.

The view, combined with the lack of any real innovation in track design, makes this a game better suited for days gone by. For mindless fun *Rally Chase* comes in at about average.

Rating: ★



Rally Chase's overhead view is easy to follow, but mostly just a reminder of videogames past

Street Hoop CD

Publisher: SNK
Developer: Data East

Street Hoop (on Neo-Geo CD) represents a slightly less formal style of basketball than one might find in the NBA, or even in other basketball videogames. In this game the rules of physical contact have been thrown away leaving a hard-core style of anything-goes ball. The success of this game is in its fast, furious pace with as few of the laws of physical reality as possible.

The teams are made up of three players each and the play control is good, simple, and intuitive. There are, nonetheless, some bothersome problems in



The lack of reality in *Street Hoop* sometimes manages to add to the game's excitement

keeping track of your players on defense due to computer-controlled player selection.

Street Hoop is definitely arcade-style action and meant primarily for two players with its quick passing and under-sized court, and it translates well enough to the home system.

Rating: ★★

World Heroes Perfect

Publisher: SNK
Developer: ADK

The success of SNK's arcade fighters is unquestionable. The question as to whether this kind of commercial arcade success warrants a home release becomes easier to answer with each practically identical title making its way to the home console.

It's not that *World Heroes Perfect* is not a good two-dimensional fighting game because it is. But there is nothing significant about this game that differentiates it from any of the long list of fighting games already available from SNK for the home system. *World Heroes Perfect* is best left for fighting game enthusiasts and those gamers without any other fighting games in their current library.

Rating: ★★

PC

B.C. Racers

Publisher: Front Street Publishing
Developer: Core Design Inc.

If you happen to be nuts for "Flintstones"-style humor, you'll dig *B.C. Racers*. Otherwise, you will just see it as an new addition to the growing heap of cute cart-racing arcade games.



From his strategic position in the sidcar, Junior readies his club to bash Steggo in *B.C. Racers*

That's not to say *B.C. Racers* doesn't have anything to recommend it. Its graphics are extremely smooth on a reasonably powerful machine like a 486/50; *B.C. Racers* does as smooth and fast an imitation of those classic Super NES-style rotating landscapes as you're likely to find in a PC game. And the ability to

club your opponents off the track adds a nice stone-age twist to the usual racing action.

But there's nothing here you haven't seen before. *Super Karts*, with its larger graphics and wide variety of power-ups, is still the reigning champion of cart-racers.

Rating: ★★

Brutal: Above the Claw

Publisher: GameTek
Developer: GameTek

Yes, it's another one-on-one fighting game. But *Brutal: Above the Claw* (also known as *Paws of Fury*) has something you won't find in *Mortal Kombat* or *Street Fighter II*: a sense of humor.

Fans of "funny-animal" comic book heroes like Usagi Yojimbo (a martial-arts bunny) will be right at home with *Brutal's* crowd of furbearing fist-fighters. In *Brutal*, you can pit Tai Cheeta against the cuddly-but-dangerous Psycho Kitty, whose deep personal motto is "Mine!"



Prince Leon pulls his secret Hendrix guitar move on the mysterious Dali Lianna in *Brutal*

Even the secret moves in *Brutal* are funny. Prince Leon the Lion sports a Jimi Hendrix afro, and one of his special attacks consists of pulling an electric guitar and monster amp out of nowhere, then pumping his opponent with sound.

More importantly, though, *Brutal* is a solid fighting game that should please any fan of the genre. If you don't need to see blood and gore to be entertained, check it out.

Rating: ★★★

Eco: East Africa

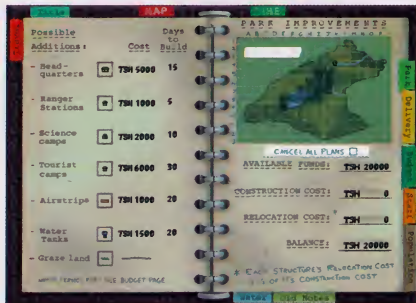
Publisher: IWI Publishing
Developer: Viridis

It could've been a lot of fun: You're a wet-behind-the-ears game warden, hired to bring a failing African game park back to life. Making things more interesting are the poachers killing off your animals — and the fact that your predecessor died under mysterious circumstances. It could've been *SimCity* meets *Gorillas in the Mist*, but it's more like a job than an adventure.

Eco: East Africa is so bogged down in micro-management that it feels too much like work; it's full of niggling little details that suck all the fun right out of the experience. You don't just hire rangers, medics and scientists, you have to hire them, assign them to their new posts, then move them to their new posts. You don't just order supplies, you've got to distribute all of them yourself. You have an assistant warden in the game, but it's never clear what he does; he's certainly not there to take any of the tedium off your hands.

Exploring your park is kind of entertaining, but only for a very short while. Hey, once you've seen one pack of hyenas feasting on a carcass or an elephant loping across the screen, you've pretty much seen them all. And you'll be way too tied down with administrative duties to do much sight-seeing anyway.

Rating: ★★



Due to the amount of micro-managing in *Eco: East Africa*, you'll spend a lot more time in your office than in the fields with the animals

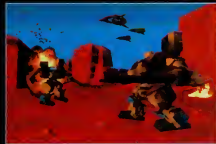
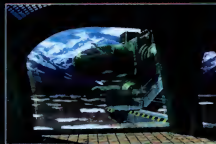
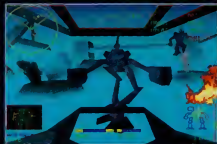


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FX Fighter

Publisher: GTE Interactive
Developer: Argonaut Software

They're calling it the ultimate PC fighting game, and they're not kidding. It's terrific.

FX Fighter is the first one-on-one fighter to use texture-mapped 3D graphics (a game technique pioneered on the PC), and the effect is really impressive. These aren't two-dimensional combatants duking it out in front of a two-dimensional backdrop; both the fighters and their surroundings have actual depth. That means the "camera" can move all around the arena, giving you a sense of being in the fight. Of course, all the flashy graphics



The mechanical Cyben lashes out at Sheba in the excellent PC translation of *FX Fighter*

in the world can't save a shoddy program, so it's a good thing *FX Fighter* is a top-notch game. Even without the spectacular visuals, *FX Fighter* would be better than *Mortal Kombat II* — and that's saying a lot.

Rating: ★★★★★

Star Trek: The Next Generation: A Final Unity

Publisher: Spectrum Holobyte
Developer: Spectrum Holobyte

As long as it was delayed, you'd expect *A Final Unity* to be either really great or really terrible. As it turns out, it's neither.



As shown above, all your favorite "Next Generation" characters are present for *Star Trek: The Next Generation — A Final Unity*

As Spectrum Holobyte's first-ever graphic adventure game, it's fairly coherent and self-assured. On the other hand, it suffers from some of the problems you'd expect from a company's first efforts in the genre.

All the principal actors from "ST:ING" lend their voices to the game, and their dialog is satisfyingly in character thanks to Naren Shankar, one of the show's staff writers during its last few seasons. Beautifully rendered animated sequences grace the game's more dramatic moments, giving *A Final Unity* some of the special-effects polish that helped make the series a hit.

But the path you have to follow to complete the *A Final Unity* game doesn't precisely make sense; as in too many graphic adventures, you'll find yourself doing a lot of things simply because they advance the plot, not because they're what a reasonable person would think of doing. And the game's just a little too easy; when the solution to a problem isn't flat-out obvious, your fellow crewmen are quick (too quick) to point you in the right direction. On the other hand, an adventure game that's too easy is always more fun than one that's too hard.

If you're a fan of "ST:ING," you definitely don't want to miss *A Final Unity*. It's just the fix you need to hold you until the next movie or novel. But if you're simply looking for a good graphic adventure, you can find better.

Rating: ★★★

The Orion Conspiracy

Publisher: Domark
Developer: Domark

Domark's new science fiction adventure has a lot of the same problems you'd find in a poorly made movie: bad acting, bad

PC

LUCKY BREAK

Virtual Pool

Publisher: Interplay
Designer: Celeris

Virtual Pool looks so simple on the surface that it'd be easy to overlook what's really going on underneath, but just a few minutes of play will reveal the title to be one of the most impressive games on the market.

Pool isn't a complex game, but it takes a very sophisticated program to simulate it accurately. And that's just what *Virtual Pool* does. Every element is perfectly modeled in sound and motion, from the clack of the cueball against another ball, to its rebound off the cushion, to its ultimate drop in the pocket. *Virtual Pool*'s model of the real thing is so accurate, in fact, that Interplay offers you money back if its game doesn't improve your real shooting skills. And that's a pretty safe bet they're making: *Virtual Pool* can't give you the feel of a cue in your hands, but it does give you a very clear, accurate picture of the physics involved in the game.

Interplay has dressed *Virtual Pool* up with some multimedia chrome — videos on the history and theory of the game — but it could just as easily have left it out. The core of *Virtual Pool*, the game itself, is as close to perfect as a PC game can get. And the variety of games available, plus the multi-player options, make it a great deal.

Rating: ★★★★★



Virtual Pool has a feature that shows you exactly where each ball will go after any given shot. A game of eight ball, anyone?

dialogue, and lots of dead time.

The Orion Conspiracy casts you as a war veteran trying to solve his son's murder, but you'll spend a lot of your time just walking through screen after screen of nearly featureless scenery, occasionally stopping to ask the same six or seven questions of the tiny handful of people you'll meet.

The dialog is absolutely abysmal: it's awkward and unbelievable, and it's peppered with unnecessarily foul language, as if the game's designers were young children trying to sound like adults by using lots of four-letter words. Then again, the voice actors in *The Orion Conspiracy* may just have made Hamlet sound a little childish.

It's never fun to bash the hard work of a group of designers and

programmers, but this is quite simply a bad game. Unless you're desperate for a new science fiction adventure, give *The Orion Conspiracy* a miss.

Rating: ★



In the *Orion Conspiracy*, you'll get an awful of uncalled-for crudity and little useful info

PC

SOARING

Flight Unlimited

Publisher: Virgin

Designer: Looking Glass Technologies

If your PC has the horsepower to do it justice, *Flight Unlimited* is an absolutely beautiful flight sim. But we're really talking horsepower, here; if you've got less than a Pentium 90, you're not going to be able to run *Flight* in a mode that looks anything like the gorgeous screen shots on the back of the box.

But in Super VGA mode, with all the graphic detail cranked up, *Flight* is a pure jewel. You can pilot any of five stunt-worthy planes — from the Pitts biplane to the Grob glider, all with painstakingly authentic flight models — over a texture-mapped landscape that can only be described as photo-realistic.

Flight sim novices will appreciate the hands-on lessons, taught by the (usually) calm voice of a digitized instructor. And experienced PC pilots will enjoy the 50 different aerial obstacle courses and the logbook that keeps track of every flight and rates your performance automatically.

One word of warning: If you've always wondered why people like Microsoft's *Flight Simulator*, you may miss the charm of *Flight Unlimited*, despite its stunning visuals. Ultimately, there's not much to do here besides take off, try a few stunts, and land — or crash, as the case may be. But if you're looking for a straight, realistic flight sim with drop-dead graphics — and if you've got a speedy machine — you'll love *Flight Unlimited*.

Rating: ★★★★★



The Pitts S-2B is the high-tech biplane you see at so many air shows. (above) The Aerobatic View is perfect for trying out dangerous stunts (inset)

(on either very good or very, very bad LSD, we're not sure which) — sends the player in search of his missing soul to the surreal island of Tong Nou, a nexus of wisdom, dreams, and the like, which just happens to be — why not — inside a human head (accessible by nostrils, ears, etc.).

Filled with psychedelic imagery, music ranging from the hypnotic to the harsh, a cornucopia (pharmacopia?) of strange creatures with desires to be fulfilled and fears to be exploited, *Eastern Mind* gives the feel of a complex mythology based on the Buddhist ideal of continual reincarnation as progress toward redemption. Maybe players versed in ethnic studies can even use that knowledge to their advantage in the course of the game; but we have no idea.

Rating: ★★



In *Eastern Mind*, there's meaning in almost everything, somewhere

Macintosh

Darryl F. Gates' Police Quest: Open Season

Publisher: Sierra
Developer: Sierra

Arrrrgh! A Darryl F. Gates-inspired *Police Quest* could have been a lot of dark laughs, at the very least. In other words, it's an appealing idea to have a game so straight-faced with police procedure that it even comes packaged with a thick, deadpan Abridged Manual of Operations from the Los Angeles Police Department... so why in Rodney King's name does Sierra keep

using variations on the same engine, over and over and over and over and over and over and over (as in this case) it doesn't work? The image quality and animation here is very clean, but for a mature-themed cop-killer drama, *Open Season* feels very S-L-O-W. And even experienced gamers pretty much have to guess how to integrate the standard Sierra interface with the objectives. Also, the game's own admirable seriousness is undermined by the fact that — despite lofty manual sections on department conduct and the like — attempts by the player to do something blatantly wrong or stupid are thwarted by tepid warnings with no consequences

right up until the point where they suddenly aren't, which makes actions unrealistically difficult to calculate. We can't decide if this is ineptitude on Sierra's part, extremely faulty memory on Darryl Gates' part, cheesy police PR, some dreadful social commentary, or a combination of them all.

Anyway, the ultimate Sierra police-based game is still a fond dream to look forward to, and in the meantime we can still keep ourselves amused with the *Leisure Suit Larry* series.

Rating: ★★

Eastern Mind: The Lost Souls of Tong Nou

Publisher: Sony Imagesoft
Developer: Sony Imagesoft

About a year ago, when we played the Japanese version of this game, we figured that when the English version finally came out — when we finally got some clue as to what the hell we were supposed to be doing — *Eastern Mind* wouldn't seem nearly so weird; well, we were wrong. Even in plain old American, the thing is completely bizarre, and looks like a video that loops endlessly at rave clubs. The result of a national Japanese search for multimedia talent, *Eastern Mind* — which in play style may be likened to *Myst*

Leisure Suit Larry 6: Shape Up or Slip Out

Publisher: Sierra
Developer: Sierra

Leisure Suit Larry 6: Shape Up or Slip Out uses exactly the same engine and essentially the same interface as *Open Season*... only it works, because it's funny. Our leisure-suited hormonal hero Larry Laffer earns a "vacation" to the horribly cheesy La Costa Lotta resort, pursuing without rest, clue, or hope, the preposterously-proportioned, scantily-clad corporeal vessels of every sexist, detestable and — let's face it — desirable female stereotype imaginable. Let's also make something unmistakably clear: any actual "gameplay" you encounter in *Leisure Suit Larry* is purely coincidental. It's not what you're here for; you're here to laugh as Larry slimes and schmoozes and fidgets (yes, there's a "fidget" command) his way through a risqué, muzak-edged, polyester world which looks like a cross between Las Vegas and The Five Thousand Fingers of Dr. T.

This sixth *Larry* installment is filled like a straining brassiere with dozens of the most gashy come-ons, puerile sexual innuendos and



This South Central alley offers clues to find a dead body to inspect, and a female officer to sexually harass in *Darryl F. Gates Police Quest*

rating macintosh

Macintosh

DEATH STARTLING

Dark Forces

Publisher: LucasArts
Developer: LucasArts

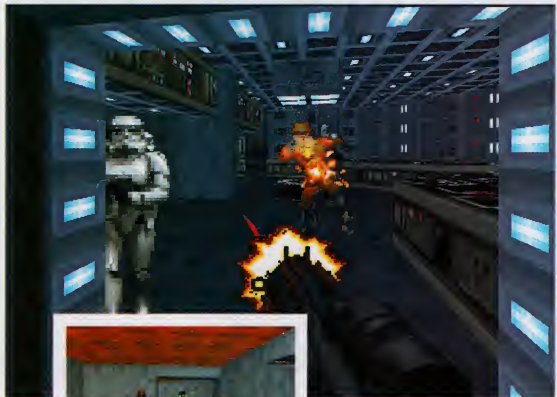
LucasArts took its own epic time getting this released for the Mac — but thank The Force, because it was worth the wait. Whereas the PC version suffered from some stiff competition, the Mac version's dearth of similar titles and increased screen resolution truly give it an edge.

When playing *Dark Forces* it's rewarding — and just a little strange — to see a first-person corridor-crawler set in a universe so many of us already know and enjoy; stormtroopers, Imperial droids, trash-compactor slop monsters... they're all here.

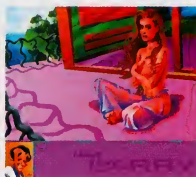
As a rogue infiltrator for the Rebellion, your first mission is to snatch the development plans for the Death Star, and the missions only get hairier from there. The environments are terrific looking and satisfyingly detailed, with an impressive sense of size.

Purposeful mission objectives (besides killing things, that is) and various neat features (like making running jumps, wiping out walls with explosives, looking up and down, or take lampit! excursions into large, dark spaces where God-knows-what can jump out at you and say boo) lift *Dark Forces* out of the faceless swamp of first-person crawlers and into a place of honor. A very classy job.

Rating: ★★★★★



The game's most impressive feature is that all the graphics have been upgraded to take advantage of the Mac's native 640x480 screen resolution. Without a Power Mac you'll have to play it at a lower resolution



This is your ultimate prize. Now THIS is a real "end" boss!

mean, ah, we don't even want it. No way! What kind of pig would want it? Right? What was that address again?

Rating: ★★

The Lost Mind of Dr. Brain

Publisher: Sierra
Developer: Sierra

Yeah yeah, it's a "Kid Game." Well, *The Lost Mind of Dr. Brain* certainly is borderline edutainment, and probably (shudder) politically correct as well... but kid game? Well, if your idea of a kid game includes handling traffic control for five inbound airliners while Chuck E. Cheese holds a Glock to your temple, then sure. This game actually gets quite fun and not a little tense. Dr. Brain, see, has accidentally imparted his intelligence to a laboratory rat and vice-versa, and to rectify the situation, players must solve a large series of animated puzzles involving spatial, verbal, musical, relational, and other tasks. We know how horrible that must

sound, but some of the segments get hairy, encompassing the rearrangement of musical pieces, reverse-engineered CAD, the comprehension of dimensional perception, not to mention

panicky, realtime multitasking. *The Lost Mind of Dr. Brain* gives you your money's worth; even in the easy mode, most of the puzzles are rather clever and at least as challenging in their own ways as *Tetris*, of which the truly alert videogamer may have heard some mention. Also, since the game is designed for creatures with the attention span of gnats

(children, drunks, gnats, etc.), players can jump from one section/difficulty level to the next as they will, and the CD is filled with relevant and irrelevant animation at every turn.

If you have (or are) a little kid, definitely try this out; if not, have six or eight drinks and try it out anyway. At worst, you'll be drunk and watching cartoons.

Rating: ★★★

Sega CD

Space Adventure Cobra

Publisher: Hudson Soft
Developer: Bulchi Terasawa

At the rate the Sega CD is dying, we can probably expect to see more titles like this. A squarely average graphic adventure, *Space Adventure Cobra*'s clichéd storyline about space pirates is punched up only slightly by lots of mild swearing and teasing hints of sex and nudity. The story centers

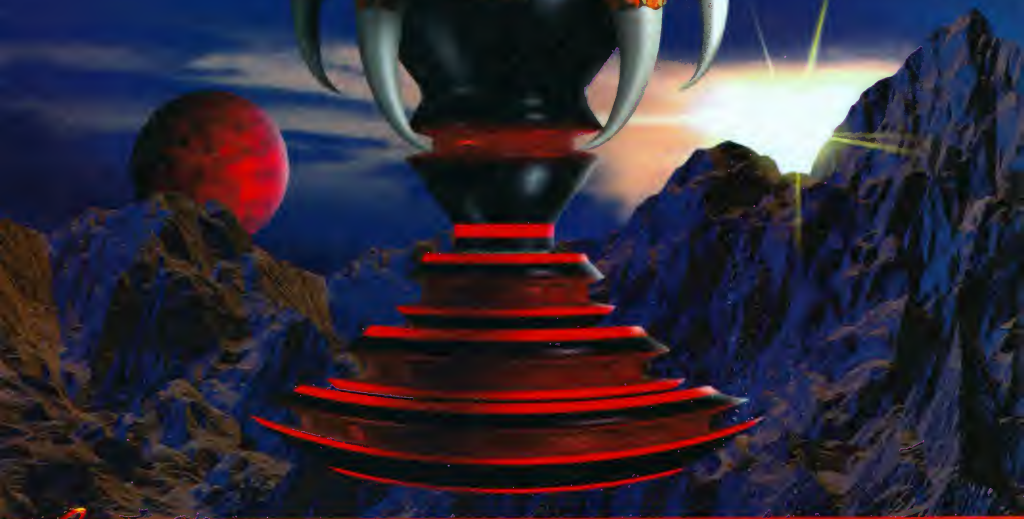


Select regions of the brain to rebuild Dr. Brain's intellect

coming this fall

coming this fall

ice & fire



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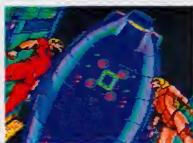


rating genesis super nes

on a map that's been tattooed on a set of comely triplets, and it's set in a bizarre universe where the women are uniformly beautiful and wear thongs every place they go. This was ported over from the Japanese game of the same title, which was, if anything, even more risqué and juvenile, and no wonder — in Japan, this sort of thing is aimed primarily at twelve- to fourteen-year-old males.

Although structurally it has a few mildly interesting touches (map screens with simulated 3D scrolling) on the whole it's badly paced, and the graphics use a anime style that's terribly uninspired. The same couple of frames of "animation" are shown over and over, and there's never any sense of danger or even tension. If you're much past puberty, it's pretty damn dull.

Rating: ★



Cobra is the sad gasp of a dying system, and it's too tame for those old enough to buy it

Genesis

College Football USA 96

Publisher: EA
Developer: High Score

The update to Bill Walsh College Football has dropped the venerable coach and added an unprecedented 70 new teams. All 108 division I schools are included, complete with the actual depth charts and uniforms of each school. From the Akron Zips to the Texas Christian Horned Frogs, they're all here.



We're sure every player on the Akron Zips will buy CFUSA96 and try to beat the Miami Hurricanes

As for the game, it is exactly the same as *Bill Walsh 95*. The college playbooks are back with all the crazy formations that make college football what it is. Running the triple option is awesome, but the passing game is real hit and miss.

There's a season mode, where you can take your favorite college through the rigors of a college season. The computer ranks the top 50 teams from week to week, keeps stats for the top 25, and selects an end-of-the-year MVP (Heisman Trophy).

College football fans will love the complete teams and playbooks, but we're still waiting to see the new version of *College Football National Championship from Sega* before we pick a national champion.

Rating: ★★★

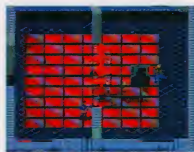
Demolition Man

Publisher: Acclaim
Developer: Alexandria

If you've played *Stargate*, *Judge Dredd*, or *True Lies*, then you've played *Demolition Man* (and you've also paid for Acclaim's next movie game).

You're John Spartan and you run rampant through the burning streets of Los Angeles shooting anything that moves in search of Simon, the antagonist. There are the usual side-to-side jumping and shooting levels, then there's the overhead levels where you wander through buildings with no roofs and shoot. The animation is smooth, the backgrounds look good, and sound is intense. The action is hectic, with masses of enemies coming from all sides, and some of the boss levels are cleverly pieced together.

Ultimately *Demolition Man* is



Barring the few *Demolition Man* fans the movie generated a year ago, how's this game gonna do?

another Acclaim movie game, and if you own one, there's no need for any of the others.

Rating: ★★

Dragon: The Bruce Lee Story

Publisher: Acclaim
Developer: Virgin

More than a year ago Virgin had planned to release *Dragon*, but it wisely declined. In steps Acclaim, which has never seen a movie game it wouldn't release.

Dragon is the most simplistic side-to-side fighter we've seen in years. The characters look sharp and the backgrounds aren't awful, but a year ago this game was stale, now it's just gone bad. The fights are slow, repetitive, and entirely too long. Simple punch and kicks that only hit from ultra-close range and annoying control features make *Dragon* a real pain to play. There is a story mode that features scenes from the movie (ooh, surprise), yet another good reason to hate this game. The one new feature is the three-player battle, which would be fun if the fighting wasn't so pitiful.

Virgin was right on the money when it decided not to release

Dragon. If only Acclaim had a conscience we wouldn't have had to waste our time reviewing this retrained of a game.

Rating: ★

Head On Soccer

Publisher: US Gold
Developer: US Gold

Ever since the success of *FIFA Soccer*, more and more of the European-developed football (aka: soccer) games are being released in the US. *Head On Soccer* (*Fever Pitch* in Europe) doesn't try tackling the mighty *FIFA*, instead the game tries on an arcade-style action game. There's none of that boring statistics and strategy stuff, you just put in the cart and start kicking away.



Barger is one of the eight unique players that make *Head On Soccer* more game than soccer

The main problem is that *Head On Soccer* is an average soccer game. The graphics are clean and sharp, the sound is solid, the action is relatively fast, but nothing *Head On* does is much better than the competition. Ball control can be tricky as you only get one isometric view of the pitch, making a long pass guesswork. Players like Barger, a beer-bellied ruffian, and Striker, the flaming foot, add to the arcade action of the game, but greatly take away from the soccer.

The *NBA Jam* of soccer games isn't what soccer purists are going to enjoy, but as an action game, *Head On* is a good game. Ultimately, *Head On Soccer* is easy to play and, unfortunately, it's just as easy to stop playing.

Rating: ★★★

Super NES

Mega Man VII

Publisher: Capcom
Developer: Capcom

Oh boy. Yet another *Mega Man*. Although the *Mega Man X* for Super NES breathed a tiny speck of life into "everybody's favorite android," updating the structure and adding new items to the usual



Three for the price of one. Three Bruce Lees duking it out should be fun, but you'll find none of that "fun" stuff in *Dragon: The Bruce Lee Story*

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arsenal of weapons you retrieve from fallen bosses, it's clear this series has been running out of gas ever since Capcom created "Dust Man" for *Mega Man IV*.

With the better "X" series already for Super NES, bringing out the last of the old is beyond redundant. While these have always been aimed at a younger audience, it's still the same game. The audience is grown now, and have gotten very tired of it.

Rating: ★★★



Do androids dream of electric sheep? Try counting *Mega Man's* instead, there are more of them

control lacks any sense of finesse, however, characters are disappointingly small, and the animation is both jerky and confusing. Overall, it's so average it hurts to watch, much less play. **Rating: ★★**

Swat Kats

Publisher: Hudson Soft
Developer: Hudson Soft

Based on the "popular" Hanna-Barbera cartoon, *Swat Kats* is yet another side-scrolling action game based on a license. While the graphics are bright and cartoony enough, there's so little here you haven't seen before, you could tape your favorite cartoon character's face on the front of the cart and pretend it's based on something else.

What sets this apart are the intermittent fighter jet stages, done in someone's bizarre, myopic idea of what a simple 3D, one-point perspective should be — shots fired "into" the screen, "toward" your enemies tend to veer off to the "sides." Someone not under the influence of mind-altering substances is going to take a while to "hit" anything.

Rating: ★★



Which way is up, or in, or whatever? We're playing *Swat Kats*, we don't know anymore

Primal Rage

Publisher: Time Warner Interactive
Developer: Bitmasters

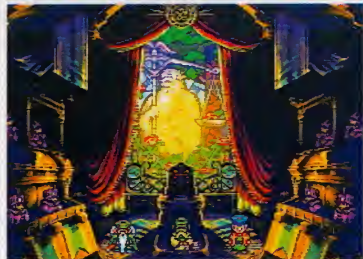
Somehow, in spite of average play control and uninspired 2D, sprite-based mechanics, *Primal Rage* made some impact in the arcades. Well, now you can take that same lackluster experience home. As far as arcade translations are concerned, this is as complete as they come, although the designers have taken advantage of the six-button Super NES controller, adding two buttons to the arcade's four-button scheme. Play



Fighting dinosaurs are the real draw of *Primal Rage*, and the translation is a complete one. But is that good enough for finicky gamers? It's doubtful

Super NES

RPG WHIZ



Square Soft's graphics are always some of the best in the business, and its latest US release, *Chrono Trigger*, doesn't disappoint — not in the pretty picture department, anyway

Chrono Trigger

Publisher: Square Soft

Developer: Square Soft

Chrono Trigger was authored (if the term applies) by Akira Toriyama, character designer of Enix's *Dragon Quest* series (aka *Dragon Warrior* in the US), and Hironobu Sakaguchi, who helms Square Soft's *Final Fantasy* games. Best of all, it shows.

This must have been something of a lark for the two of them, because it often subverts standard RPG mechanics. Not in big ways, but every once in a while, if you do things in ways you've become accustomed to, you get some odd surprises. The game mechanics are impressive and mildly innovative. The story revolves around a number of time-traveling paradoxes and the characters' efforts to fix them, giving it at least 15 different endings. Battles take place on the terrain map, rather than switching to a different combat screen, characters can combine their talents for group attacks, and best of all, you can see the battles continue, instead of being jumped at random.

Compared to the melodrama of *Final Fantasy III*, however, *Chrono Trigger* comes off as a slight game. In spite of its sprawling storyline, not one of the characters develops in very meaningful ways. All the parts are in place, and it still easily qualifies as one of the best RPG's ever made, but anyone who wondered how Square was going to outdo itself after *FFIII* is going to have to wonder a little longer.

Rating: ★★★★★



Tired of being randomly attacked in your favorite RPG? Here, you can see them coming (above). It may look familiar, but *Chrono Trigger* doesn't play like other Super NES-style RPGs (below)

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Sofia Says give the money to your
local video game store and do it now.

Sofia Says get on your
knees and bark like a dog.

**Now give
Sofia a kiss.**



ah- ah,

She didn't say **Sofia Says**. Now she has to hurt you.

Super NES

BASIC



Rare has again doubled the Super NES's color palette, but the characters are small, and the animation is less than smooth

Killer Instinct

Publisher: Nintendo of America
Developer: Rare

When Nintendo announced *Killer Instinct* would be the first title produced for the then all-mysterious Ultra 64, the world held its collective breath. When the game was unveiled at Summer CES in '94, the debate centered on whether the characters were rendered on the fly — certainly there had to be more to this game than first met the eye? Alas, it wasn't so. Despite its solid if unexceptional play mechanics, the prerendered sprites and excellent character design were enough of a novelty to give it an edge in arcades overflowing with 2D fighters, at a time when the influence of polygon-based brawlers had yet to be seriously felt.

However, it's clear that *Killer Instinct* is a far cry from the groundbreaking title it was touted to be. While the combo system was new (and despised in some corners, as there are those who believe that combos should come through skill, not magical sequences of buttons), the concept behind the look isn't materially different from *Mortal Kombat* — the latter has digitized live actors, the former has digitized rendered ones. So, it should come as a surprise to no one, especially after the 100% rendered characters of *Donkey Kong Country*, that a Super NES translation is not only possible, but likely, and that it would be very close to the arcade version.

Well, here it is. Nintendo and Rare have managed one very impressive trick: getting the 16-bit Super NES to display 512 colors at once, twice the usual number, which gives the graphics an extra gloss. Nintendo has stated that *Killer Instinct* will be enhanced for its eventual release on the Ultra 64, let's hope so, because by then, this will be very, very behind it.

Rating: ***



If all fighting games had been stuck in two dimensions, *Killer Instinct* could get by on the strength of its character design alone. A year and a half ago, *Killer Instinct*'s rendered characters were a novelty. Not so anymore

Arcade

Cyber Cycles

Publisher: Namco
Developer: Namco

Using crisp multicount polygons and citadel-like backgrounds, *Cyber Cycles* could have slid by with decent gameplay, luscious looks, and a nice soundtrack.

But there's no mediocrity here. Namco's newest entry into the cycling arena — *Cyber Cycles*, following up from its *Suzuka 8 Hours* and *Suzuka 2*, and Sega's original *Hang On* — is an improvement through and through to the degree that it's really no longer in the same league. This is a next generation cycling game posing a significant challenge to any previous cyclers, easily passing up Sega's *Cool Riders*.

You straddle the fiberglass bike and, using the right handle for acceleration along with the brake, lean from left to right to maneuver your way through the course. Race the computer or network to vie against one other human; choose from three different bikes, the Anthias (novice), NVR 750R (intermediate); or the Explorer (aka the Hog, for experts); from two different tracks, Green Hill or Neo-Yokohama; and speed your way to the finish line.

The Hog takes the most practice to maneuver, and once learned, it's worth it; balancing brakes with full-throttle slides almost always puts you ahead of the opponent, and the more complex route, Neo-Yokohama, challenges you with triple dips, long straight stretches, and multiple sharp turns. Spend the quarters, you'll be glad you did.

Rating: ****



Cyber Cycles combines exotic locale with realistic cycle racing, and utilizes a Super Hang-On-style bike you lean on to steer left or right



Elevator Action II draws out the psychotic gun shooter in you

Elevator Action II

Publisher: Taito
Developer: Taito

In terms of the sheer quantity of bullets shot per second, Taito's up-and-down, side-scrolling shooter sequel tops the charts.

This title — an entirely more complete game, far and away better than *Elevator Action I*, and more like *Rolling Thunder* — enables your choice of three characters to stalk buildings, airports, airplanes, and dilapidated apartments in the hunt to kill evil henchmen and collect power-ups and more powerful weapons, using various forms of elevators to your advantage. Yes, this is a dumb thumb-number and you'll have to shoot everything — black-suited men, relentless zombies, yelping dobermans, and zooming jetpack-strapped killers — or they'll shoot you first. And if you don't arrive at the sixth and final mission before time runs out, a crazed terrorist who "wants to create a new society" will nuke major worldwide metropolitan areas.

Elevator Action 2 brings out the impulsive, frenzied, shooting psychopath in you, and in that, it's fun. But if this side of your personality is already spent, and ours certainly is, then you'll pass this classic shooter right up.

Rating: ***

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Arcade

BODY SLAM



What Tekken 2 does better than its predecessor, besides include more characters, is more or less hidden in your ability to uncover the characters' many moves. Bruce disposes of Jack (above)



Of the two new characters, Bruce and Jun (top), Jun is the easiest to pick up and play. Characters often lapse into disco, a small flaw

Tekken 2

Publisher: Namco

Developer: Namco

With the mob of fighting games struggling to grab your attention, Namco has quite quickly produced the sequel to Tekken, its brawling-styled polygon fighter — which may find the limelight yet.

With Namco's new Super System 22 board in use, Tekken 2, essentially an upgrade of the original, features two more characters for a total of 10, more moves and combinations per character, a few secret characters, 21 beautiful backgrounds, two subbosses (Jun and Bruce), and a different final boss, Kazuya — all in the context of a storyless fighter. Tekken 2's clean, sharp graphics and attention to detail are clear here, portrayed by flat (shading in realtime) and glow (selected shaded areas) shading an improvement over its predecessor. This combined effort, plus a few extras — your opponent's head lifts up while you jump, its eyes eerily following you; and newcomer Jun's graceful but deadly attacks and special wrestling arm-breaker — are sure to draw in fighting fans.

It's the style of body slamming and wrestling moves that sets this game apart from its closest cousin, *Virtua Fighter 2*, which makes it of interest. And the variation of moves and combinations surely place this game near the top of the heap, though the game is still not truly 3D in viewing perspective. Could Namco have gone farther? Or did the company just strategically time Tekken 2's arrival while new fighters are still waiting in production?

Rating: ★★★★★

Street Fighter the Movie

Publisher: Capcom

Developer: Incredible Technologies

Now that *Street Fighter the Movie* has emerged from the videogame series, we presently have the lame marketing idea of videogame based off a movie originating from a videogame... And for those who loved *Mortal Kombat*, *Street Fighter the Movie*, with digitized favorites Jean-Claude Van Damme

as Guile, Raul Julia as M. Bison, and Ming-Na Wen as Chun Li, looks just like it.

Despite this digital crossover — neither brilliantly conceived nor sleepily dull — this game features the former fighting moves from *Super Street Fighter II Turbo* and excellent new ones, among them two new "Super" moves per character (executed when the Super Meter is full), Interrupts, Throw Counters, reversals, recharges, and Comeback moves,

which add to the growing *Street Fighter* series' depth.

With an average of 714 frames per character, any of the 14 characters can execute as many as 12 combos in a row, many spilling chunks of blood that look like red-colored scrambled eggs — and with Chun-Li's somersaulting, thigh-clamping, face slapper (uh, miss...), or M. Bison's lightning bolts, you'll have a bit of fun.

Rating: ★★

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Fight for your writes!

It's been almost an hour since I was able to confirm that Nintendo's Ultra 64 wouldn't be released this year and I still can't wipe the grin off my face. Actually, as a gamer I'm annoyed, but since it's Nintendo, this makes it funny. How can we continue to keep taking Nintendo's announcements seriously? I still talk to the occasional person wondering when the Super NES CD-ROM is coming out...

Based on the newly reported May release of Saturn and PlayStation in North America in their late '94 releases in Japan, this will give Sega, Sony, 3DO, and maybe even Atari an extra 11 months to a year and a half to further deepen their roots in the market. Every competitor's system sold is still a potential loss sale for them.

Are we now seeing the beginning of the end for Nintendo? Being late to the next level with the Super NES wasn't a big deal because Nintendo only had one successful company to catch up to — Sega. Now they'll be playing catch up to Sega, Sony, 3DO, and, with lots of luck, Atari.

Steve Ouderirk
Ottawa, Ontario,
CANADA

Nintendo would point out that being last to the market isn't a big problem. Last month, Nintendo of America's President Howard Lincoln argued that back in the 16-bit era of the early 1990s, the Super NES fell behind the Genesis for many reasons, but the year's head start that Sega had over them wasn't one of them. This is certainly a debatable point, but Nintendo is sticking to it.

I'd like to request an explanation of the technical terms frequently used in **NEXT Generation**. I mean, I can tell you if a game has good graphics or how strong its gameplay is, but I would be clueless on topics such as texture-mapping, the abbreviations used in your chip diagrams to explain the processes, and especially the tech specs terms used to further describe your reviewed game systems. Now, your magazine may be aimed more toward readers who do have the background in these areas, but I, along with many of my **NG**-reading game-intense friends, would much rather get the background than sacrifice giving up reading **NG**.

Eric Dickstein
Clark Summit, PA

Look for the definitive **NEXT Generation** jargon-buster feature in an upcoming issue.

I am writing in protest to a letter from Allan Gamble in your **NEXT Generation** May '95 issue, in which he said, "Howard Lincoln is a man who betrayed gamers everywhere and made a fool of himself by butt-kissing Senator Lieberman, but I bet you still have respect for the man (he's every Nintendo fan's hero)." Say what? I find it very hard to imagine Howard Lincoln, of all people, "betraying" or "butt-kissing" anyone. I'm glad Nintendo acted the way it did. I don't see this as "betraying" anybody or "butt-kissing" anybody, but rather as being thoughtful and mature enough to look at the situation from

different points of view and to attempt to come up with the best course of action.

Rebecca Cataldi



NOA's boss assures gamers quality titles for Ultra 64 in '96

For those of you who missed it, our interview with Howard Lincoln can be found in last month's (August issue) **NEXT Generation**. Back issues can be ordered on page 32.

There is enough confusion in the perceived quality of the new systems coming out this year. Please do not run rendered, SGI-quality covers like in issue #7 and say that's how the Sony Playstation looks! If the game looks like that, then we're all going to spend a lot of money on an SGI workstations, not Playstation.

Macmidi41@aol.com

A fair point. It's difficult when choosing a cover image to walk the fine line between technical authenticity and artistic refinement, but we thought the *WipeOut* image appealed both points of view. The game does genuinely look stunning, and, for what it's worth, images like this one will be found within the intro sequence of the title.

G'day. My name is Adam Gavel, and I live in Brisbane, Australia. In

Australia, **NEXT Generation** is the only magazine that adequately addresses the subject of the next gen machines, and provides news & info on the industry. However, the fact that we live in Australia means we have to wait two months before issues hit our shores — and pay more for having them imported.

What is the possibility of an Australian branch of **NEXT Generation** being formed? Considering Australia is fairly close to Japan, and a bit further away from America, it seems a little bit silly that news from Japan has to travel over the Pacific and back again, before we can get a hold of it.

Adam Gavel
(& other Aussie readers)
gavalnet@student.edu.au

There's no news of a future Australian office as of yet. **NEXT Generation** has full time staff in both Europe and Japan, and **EDGE** — our sister magazine — is published out of England. So that's the extent of our plans for global domination, at least for now.

S am Tramiel is full of it when he says that his pseudo 64-bit Jaguar is as powerful, if not more powerful, than the Sega Saturn. How in the hell is a system with a MC68000 as a CPU going to go head to head with a system that uses twin Hitachi Super HRiscs running at 28.6 MHz and a total of 50 MIPS? Software! Ha! Put *Tempest 2000* up to *Panzer Dragoon* and you'll see where the power is at. The Saturn maybe a pooch but the Jaguar is sure as hell a pussycat.

Doug Sutter

corresponding

Sam Tramiel's recent interview caused no end of inflamed responses — and almost 100% of them are in contest of his defense of both Atari and Jaguar. The following letters are some of the more printable ones...

First off, I'd like to make a few comments on your interview with Atari's CEO, Sam Tramiel. At first, Mr. Tramiel seemed to be a very intelligent and respectable part of today's gaming industry. As I read further on, I quickly changed my mind. You don't see Tom Kalinski crying to the ITC [International Trade Commission] because Sony plans to undercut the Japanese system price by \$200. Mr. Tramiel goes further on to state that his system is more powerful than Sega's Saturn and only a little, [little,] little bit less powerful in certain areas than the Sony PlayStation. Talk is cheap Mr. Tramiel, and even if these allegations are true, I or anyone outside your company sure as hell haven't seen anything to back up your statements. Why is this Mr. Tramiel?

One other thing: A little message to all you teenage gamers whining about the prices of the next generation systems. Get a job! Summer is starting and I for one happen to have one and guess what guys, I only have to work 10 days to pick up a shiny new PlayStation or Saturn. Ten days guys! That's working for minimum wage by the way. And you guys call yourselves gamers? Why not try deadbeats!

Jeremiah Fedoruk
Chilliwack, BC

Looking for a summer job? Head for Chilliwack, BC! Tell 'em Jeremiah sent you...

Perhaps a better title for last month's interview with Sam Tramiel ("Atari's President Talks Back," on page 6, **NEXT Generation** #7) would have been, "Atari's President Takes Drugs."

Especially deluded were his claims that the Sega Saturn is only "the same, if not even less technology than Jaguar," and that the PlayStation is no more technology than Jaguar, but uses

more memory to become "a little, little bit more powerful in certain areas." Face it, Sam, your comments fooled no one. The Jaguar isn't ready for either the Saturn or the PlayStation — it's ready for the litter box.

Robert Rhode
Janesville, WI

OK. That's quite enough responses to the Sam Tramiel interview. Onward.



Are Atari's upcoming Jaguar games too little too late?

Sega... They say it stands for Service & Games, but in reality, it probably means SElls GAdgets.

Everyone has heard the old analogy that so-and-so is such a good salesman that he could sell a refrigerator to an Eskimo. Well, Sega has built the fridge, but instead of just trying to sell the thing, they want to see how many stupid magnets they can unload on the poor Eskimo as well. That Eskimo represents the gaming public. The Eskimo doesn't really need the fridge, but it sure does make life a little more fun. Those magnets you ask? Why, every little add-on Sega has conceived for its home system turns out to be more decoration than anything else.

This isn't a recent phenomena either. Remember the 3D glasses for the seemingly ancient Master System? Good concept, lousy games. How about the modem for the Genesis that only saw the light of day from the land of the rising sun? Then there's the Menacer (I only remember one game for that thing), there's the Activator (what a waste of time), the ridiculous "action chair," and finally you have the 32X. That piece of hardware was dead and buried before the hole stopped smokin' in your pants pocket. The biggest "gadget" Sega has

ever tried to market hit the shelves May 11 — Saturn. They've scrapped the fridge altogether and just decided to manufacture a \$400 magnet.

Sheldon Coles
Toronto, Canada

Not a Sega fan then, Sheldon?

I am a proud owner of one of the original machines, and, having invested \$700 bucks or so in it, I'd really like to see this platform succeed, so, if anyone designs a new controller for 3DO, it would be a great idea to cluster the A, B, and C buttons at the same time. (Granted, not all games use those buttons at the same time, but that's not the point...)

Also, when M2 arrives, could you guys at 3DO build the memory manager into ROM? Maybe the system could check for controller buttons on power up or something and take the user directly to the file menu. The reason I mention this is because it seems that too many save-game files eat up the memory available for games to load in. (that's what Panasonic said.) To fix the problem, I have to wait for Panasonic to send me a disc with the memory manager on it so I could get rid of some of the stuff I didn't need. Whoever heard of a computer without a delete command?

Kudos for a great magazine, keep it up!

Mike Gloss
Fredericksburg, Virginia

Your comments have been passed on to 3DO, Mike.

Hi, I have been wondering about the "hack-ability" of these new next generation machines. Let's assume that I'm interested in producing television quality 3D animation. An SGI machine, and the needed software will run in the tens-of-thousands of dollar range. But a Sony PlayStation will cost, what, \$400? What's the story? (I know that an SGI is in a completely different park, but how much technology does one really need to own?)

Hypothetically, if someone knew what they were doing,

couldn't they hack a game console for the graphic power? I mean these are some fairly serious computers for the cost! An Atari Jaguar can shift blah blah polygons a second, and do blah blah blah, and it's almost for free! It seems to me that this power is just waiting to be hacked. I'm not talking about mass-production either, let's just say someone wants to build one serious machine. Or, better yet, could a company write software to run on a game machine that will let us use this power?

Dave Phillips
Philadelphia, PA

An interesting idea Dave, but probably not practical. A PC-based interface with all these systems is necessary for accessing the power of the custom chips, which pushes the price of the overall package way beyond your "nearly-free" ideal.

An important factor in determining which new game system to purchase will be rental availability. Both Sega's and Nintendo's games can be rented at such places as Blockbuster Video, etc. Both 3DO's and Jaguar's games cannot, which has no doubt hurt their sales. There is nothing more annoying than finding out the game you just purchased is not what you expected. It is important to test a product before you purchase it.

Jack Pellegrino
Staten Island, N.Y.

Agreed.

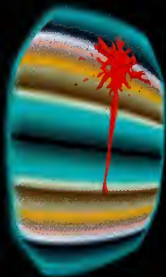
A couple of years ago my parents told me about an article saying videogames were dangerous. The article said a study had been taken stating videogames cause epilepsy and epileptic seizures. Because of this, my parents made me sell all my gaming systems and I really want them back. So can you do me a favor? Could you check this out and tell me if this study was found out to be true?

Tony Garcia, Mission, TX

Expect a feature on the subject of the physical effects of videogaming soon.



Next Month

**Do videogames screw you up?**

The media backlash of 1994 blamed videogaming for Repetitive Stress Injuries, epilepsy scares, and countless stories of videogame "addiction." Now that the dust has settled, what are the real dangers involved with gaming?

A **NEXT Generation** report.

NEXT Generation #10
on sale September 19, 1995.

Smart readers have already subscribed. To find out how you too can save money and guarantee your copy, turn to the insert between pages 32 and 33.

I was
passing through a wasteland when suddenly my mind drifted . . .



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